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VOLUME 1

THE ARCHAEOLOGY

AND

GEOGRAPHY

OF

SHETLAND BROCHS

BY NOEL FOJUT

Thesis presented in accordance with the requirements for the
degree of Doctor of Philosophy in the Faculty of Arts,
University of Glasgow.

October, 1979.

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Lookout posts, ancient and modern ?

The Saxa Vord early-warning station looks down on
the broch ruins at Burraferth, in northern Unst.

VOLUME 1

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This thesis represents the results of extensive field survey in Shetland, supported by bibliographical research and by the inspection of private and public collections of artefactual material. The aims of research were twofold : to establish the place of Shetland in the development and spread of brochs in Scotland, and to investigate the palaeogeography of the period, with a view to extending the knowledge of Iron Age Shetland available from more traditional, excavation-based, studies. These two objectives determined the structure of the presentation of results.

Section 1 deals with the structural and artefactual evidence. It commences by setting the Scottish scene, and proceeds to detail the Shetland portion of this. A review of published work concerning brochs is followed by a critical review of certain aspects of current theory. This discusses the three major published excavations (Jarlshof, Clickhimin and Dun Mor Vaul) in detail, together with theories of architectural evolution. Certain reinterpretations are proposed, and a scheme of origin and development advanced which attempts to reconcile the well-founded portions of both of the main schools of thought (the western and northern origin theories). It is suggested that too little attention has been paid to possible connections with the archaeology of Eastern Scotland, and too much to the West.

This section continues with a discussion of major outstanding research themes connected with brochs. It is suggested that while definitive answers are generally not to be found, it is usually possible to outline the broad limits of possible solutions to many of the questions asked about brochs. These themes are not carried into detail, as adequate information does not exist to give meaning to such an analysis.

Once this essential, but general, material has been concluded, the specifically Shetland content commences with a thorough review of published and unpublished research into brochs and allied sites in the Islands. This leads on to a detailed analysis of the material culture of the period, and the elements of this are compared, both in type and in style, to the Scottish synopsis presented by Mackie (1973). It is demonstrated that certain preconceptions, particularly concerning the ceramic sequence, are not justified by fact. This has resulted in the incorrect dating (in relative terms) of Shetland's brochs. Material evidence regarding the economic activities of the broch-period population is introduced, and its limitations discussed. This is carried /

carried further in Section 2.

The final major consideration of the first section is of structures. A detailed analysis is undertaken of all visible broch architectural features, using statistical techniques. This suggests the need for modification of some views generally held with regard to the architecture, and possibly date, of Shetland brochs. In particular, the broch of Mousa is shown to be almost totally atypical of most brochs in Shetland, as in Scotland. It is concluded that while the Shetland examples may be of a reasonably evolved type, there is no evidence to suppose that they are all late in date of construction. Evidence is adduced against skilled specialist architects and in favour of local copying of a few "model" brochs. It is demonstrated that, as for material culture, the importance of Eastern Scotland has been unduly minimised.

Attention is also paid to external and internal "subsidiary" structures, following upon more general discussions earlier in the thesis. It is shown that external structures need not all be of much later date than the brochs themselves, but that internal fittings do (in contrast to much of Scotland) seem to be of distinctly later date. Ramparts and other defensive outworks are examined, and a case put forward for these being potentially for more varied purposes than defence alone.

Finally, after a discussion of defensive and other structures of the period which are not brochs, this section concludes with a review of present work and suggestions for future research to support or deny the new ideas presented here.

Section 2 represents the outcome of an attempt to apply the results of field survey of environmental factors to the production of a location model based upon economic considerations. In the construction of this model, a wide variety of techniques are introduced, and the overall result is the delineation of the geography and economy of the period.

This section, after initial discussion of the potential and limitations of fieldwork data, is structured on the basis of scale, commencing with the general and proceeding to the detailed.

The distribution of brochs is considered in terms of possible spatial interaction between groups, and this includes discussion of the possibility of deliberately intervisible siting, an idea which is rejected for most cases. Also at this macro-scale, correlations between broch distribution and the distributions of areally-expressed factors of /

of the physical environment are considered. From the results, it is suggested that the distribution of brochs is strongly influenced by a complex interaction of environmental variables. The statistical techniques utilised are outlined and justified, and reasons are given for and against the use of more sophisticated approaches.

At the meso-scale, attention focusses upon the problems of defining the territory of each group, and of reconstructing the pattern of life within each territory. Particular attention is paid to questions of population-potential and carrying capacity. Formal methods of territorial definition are introduced and applied. These are then modified, through the medium of a case-study of southern Shetland. Having identified the main failings of the formal models, through the practical study, a new, less-rigid, concept of territory is introduced. This core-periphery approach is extended to the whole of Iron Age Shetland, and a system is developed for the classification of broch economic areas in terms of resource potential. Considerable variety in local economic options is noted. Finally, methods of estimating Iron Age population are reviewed in the light of this new understanding of economic diversity.

The micro-scale discussions concern the siting of brochs within their home areas. The factors influencing choice of site are examined, using basic statistical procedures, and it is shown that while defence is the major consideration evidenced by siting, it is by no means the only one. It is suggested that analysis can quantify the different, and conflicting, demands made upon the site by different activities envisaged by the broch-builders. This quantification is based upon the principle of substitution of advantages.

Following these discussions, a diagrammatic model for broch location in Shetland is presented, and its limitations discussed. It is observed that the whole approach has considered only the economic factors, as the social constraints are not available to observation. Ways of extending this model, and of modifying it, are proposed.

In conclusion, the contribution of this section to general methodology is summarised, and future developments are advanced which might reasonably be expected to flow from, and extend, this attempt to extend our knowledge of the prehistory of a small part of Scotland.

Preface: Origins of this Study

That this study was conceived in a Geography Department and executed in an Archaeology Department is indicative of the willingness of archaeology to accept both methods and personnel from other disciplines. But in this receptive attitude lie dangers: the archaeologist cannot be expected to have the background knowledge necessary to assess the potential and the limitations of new techniques, when such constraints may lie in the original formulations of theory some academic generations earlier. Likewise, the newcomer to archaeology cannot expect to understand the archaeological modus operandi without lengthy exposure to the procedures of the subject, in its practical and academic manifestations.

These strictures have been amply demonstrated by the fact that in the passing of three years research this thesis has gone from being a purely geographical, even methodological, composition based upon a scanty archaeological basis, to its present form, in which archaeology plays at least an equal role. Fresh from the delights of random-walk theory and nearest neighbour analysis, it was an easy matter to read papers such as Cottam and Small (1974) on Settlement in Southern Pictland, and locate the blatant misuse of geographical techniques, or even to look at Hodder and Orton's (1976) attempt to summarise available spatial techniques, and feel misgivings about the validity of some of the methods proposed for archaeological utilisation. Indeed, it was a lecture by Professor Colin Renfrew, on the material in his 1976 paper, which sparked off the interest of the writer in the misuse of geography by archaeologists. Now, three years later, it is the proto-archaeologist who looks askance at the treatment of archaeological data by geographers, ignorant as the latter often are as to what the data represents, in terms of reliability and representativeness, or of the vast lacunae which tidy models can disguise without filling/

filling.

This study began as an attempt to test some of the methods derived by archaeologists from geography for the analysis of fieldwork data, with a view to elucidating patterns both purely archaeological but also palaeo-geographical and palaeo-economic. This was to be achieved with a set of data, gathered by reading and field work, representing the available information regarding all aspects of brochs in Shetland. The data-set was to cover archaeology (structures and artefactual evidence), palaeo-geography (distribution, location and siting) and palaeo-economy (environmental setting and occupation evidence), with particular attention being given to the interactions between these general areas. This has, in fact, been completed, and in the process much new material of interest emerged.

The result of a closer acquaintance with published material and the field work evidence, was the realisation that archaeology could not be treated as an inert basis upon which geography could experiment. The geographer could not answer archaeological questions unless the archaeologist knew which questions he desired answered. In fact, the requisite archaeological consensus naively envisaged when planning this research project simply did not exist. Thus the creation of an integrated view of the brochs in general based upon the available evidence assessed upon its true significance rather than as proof or refutation for deductive theories, formed what was ultimately to become a major concern of research. This general assimilation of material was essential to the place of Shetland in the overall broch province.

Had the intention been simply to attempt a reconstruction of the broch economy (as Heisler(1978) has done for Caithness) then the massive archaeological input might not have been necessary. However, the desire here was not simply to produce overall economic suggestions, but an integrated view of the processes behind the observed evidence, and this made detailed discussion of archaeology essential and integral.

It/

It may seem paradoxical that a study aimed at integrating the fields of archaeology and geographical methodology should be presented in two sections which correspond to these two areas. However, this is simply a convenient form of presentation, especially as the casual reader will tend to be concerned with only one section. But the other good reason for this structure is in fact a methodological one. Section 1 deals with archaeological information, and includes detailed consideration of the work of others. Despite the extensive field work contribution, it nevertheless depends upon critical synthesis of evidence for its conclusion and a substantial amount of the evidence is not available to first hand confirmation.

This limits both the methods used and the power of the conclusions. Section 2 deals with geographical information, and although that information may be of equally doubtful quality, it has the advantage of being collected at the same level, by the same methods, over a short period of time and by the same person, the author. Thus it has a much higher level of comparability and can thus be used to draw more powerful conclusions.

But why the subject? Like many research projects, the subject is perhaps more incidental than might be thought desirable. A previous visit to Shetland had made a deep impression. When interest in the subject of geography in archaeology was first aroused, coincidence again directed the attention towards the north, although to Orkney (Davidson et al, 1976). Having once decided the general form of the research, it was felt desirable that the study area be naturally bounded and as little disturbed by later activity as possible. This inevitably pointed towards the remoter areas, and the combination of a desire to return, and the extent of agricultural activity on Orkney, promoted the choice of Shetland. This left the choice of period. (At one time the concept of a cross-section of different periods was considered. This has been attempted by Mr. P. Winham of Southampton University).
Apart/

Apart from the requirement for a sizeable sample (fifty or more sites) this was open to choice, so naturally the most discussed and published period was chosen, that of the brochs. The intention of this, which was to minimise the archaeological work required, sadly misfired, when it became apparent that volume of discussion is proportional not to knowledge, but to uncertainty.

Hence the present study, which proceeds by way of discussion and critical analysis of existing work on Scottish brochs to a similar process concerning the place of Shetland's brochs in the Scottish scheme, and then to analysis of the available evidence to re-assess the validity of the role assigned to Shetland in this archaeological period. That role once established, discussion moves on to evidence which can be gathered for any archaeological sites, and an analysis of this which, when integrated with the archaeological facts, contributes towards an understanding of the human processes underlying the observed patterns of brochs in the Shetland landscape. A model is constructed of the schematic processes of choice involved in seeking a homeland and a settlement site, with parameters derived from the analysis of environmental and locational data. To round this off, the thesis closes with discussion of the general implications of the techniques used and the limitations discovered in their use.

Thus the first section represents a contribution to the archaeology of Iron Age Scotland, the second a contribution to the palaeogeography of Shetland, and the third a contribution to the methodology of field work derived data analysis.

SECTION 1

ARCHAEOLOGICAL

DISCUSSIONS

Definitions

Before beginning any discussion, a number of basic definitions are necessary. These will be supplemented by a glossary of technical terms, so that only five terms need be defined formally at this stage.

1. BROCH: A drystone structure, approximately circular in plan, with a wall-thickness of from 30 to 60 per cent of the overall radius. A single, narrow entrance, which may be provided with guard cell(s) and normally contains checks for a door-frame, pierces the wall at ground level. There are no other external apertures. The thick wall is hollow, either from the ground level or from about two metres above ground level, the hollow section taking the form of superimposed lintel-floored galleries, less than one metre wide. These galleries are linked by an internal stair, which may be spiral or consist of discontinuous segments of a spiral. It is not known whether this stair reached the wallhead, nor what the form of the wallhead was. The actual height of brochs must have varied, but it has been argued that all were high enough to be characterised as "towers" (see Chapter II), an interpretation supported by the massive basal proportions and the pronounced batter of outer wall-faces. Normally brochs are ruined to a greater or lesser degree, and it is normal archaeological practice to use a drastically modified set of criteria for field identification: diameter from 15 to 25 metres, evidence for a single narrow entrance of appropriate type and for a massive wall-base generally being sufficient, especially when combined with evidence of one or more of the more easily concealed traits, such as galleries, mural cells or staircase. Circularity is normally taken/

taken as a sine qua non, although considerable deviation from the circular may be excused if many other "broch" features are present (MacKie, 1975).

2. DUN: A drystone structure with a thick wall pierced by one (rarely several) narrow entrance and enclosing a relatively small area of ground. The essential feature is that the thickness of wall exceeds that required for any purpose other than defence. Plan is not rigidly restricted, but most duns are of relatively simple plan, ranging from circular to D-shaped to rectangular. A broch is therefore a highly specialised type of dun (or better, a type of dun with a highly-restrictive definition).

3. GALLERIED

DUN: A dun with a portion of the wall characterised by being built in the same manner as a broch, to form a gallery contained within the wall. This gallery may be at ground or at first floor level, and in most cases does not complete the circuit of the wall. Galleries are particularly common over the entrance portion of these duns. It should be noted that a sub-circular galleried dun, when ruinous, would be hard to distinguish from a broch in similar state. In essence, a broch is a specialised galleried dun, itself a specialised dun. This is in structural terms, and need not carry any chronological overtones, although these have been suggested.

4. SEMI-

BROCH: A D-shaped drystone structure, having as one side a natural strength (normally a cliff) and a light wall. The remainder of the circuit is a thick wall, containing one or more galleries and an entrance with door/

door checks and (optionally) a guard-cell. The thick wall is of the proportions ascribed to brochs and could, presumably, have been built to some height (MacKie, 1965).

5. BLOCKHOUSE: A trapesoidal or rectangular block of drystone masonry with a broch-like entrance (usually lacking guard-cells) and chambers within the thickness of the block. To date only conclusively identified in Shetland (Lamb, 1972).

All of these definitions are generalised, but will serve to illustrate the points made in the rest of this text. In field practice, sites are often assigned to classes without firm evidence of certain of the details given above, because they resemble, superficially, other sites whose nature is determined.

Section 1Chapter IThe Archaeology of Brochs, and Shetland

Although the original intention of this research was to use the archaeological knowledge of the brochs as a basis for experimentation with geographical and statistical techniques, it became apparent, at an early stage, that there was not a single, established, body of fact. The absence of this, perhaps naively, imagined prerequisite meant that a much more detailed examination of the published archaeological literature became essential.

A review of the development of broch-studies was undertaken to define the main areas of uncertainty, and this revealed almost as many explanations of origin, function and development as there have been excavators. In particular, two different theories as to the origins and development of brochs have gradually grown up, to reach their present expression in the writings of Hamilton (1956, 1968) and MacKie (1965, etc.) Although these theories, which seek respectively a northern, and a western, origin for brochs, seem to be directly comparable, they are in fact difficult to compare critically, being based upon evidence and reasoning of different forms.

The situation at the commencement of this study was that the Shetland brochs could not be fitted into the general picture of broch development because there was no general picture. The role of the Shetland examples is different in each theory.

Clearly, this left two options. One was to attempt to define the archaeological evidence for the whole of Atlantic Scotland in such a way that the Shetland brochs' place in the overall scene would be clear. The second was to attempt to define the characteristics of the Shetland brochs and then to fit this newly clarified material into the known archaeology at a wider scale. In fact, both methods are valid approaches, and both have been used.

A/

A review of broch theories and discussions (Chapter II) attempts to show how various preconceptions and hypotheses have evolved. This leads to a discussion of the present state of broch archaeology (Chapter III), and an attempted synthesis of various theories to produce what could be regarded as all that can be said with certainty about brochs (Chapter IV). This last described synthesis consists of the statement of the available possible explanations for observed facts, and a simplified theory of the origins and spread of the phenomenon.

Having taken the Scottish picture as far as (or perhaps further than) seems reasonable and safe, the process of review can be repeated at a greater scale of detail for Shetland, with particular attention to the place of Shetland in the supposed Scottish situation, and to the emergence of specific views on aspects of broch studies peculiar to Shetland (Chapter V).

After this, the time to introduce fresh material has arrived, and the results of extensive field work in Shetland are presented under the headings of Material Culture (Chapter VI) and Structures (Chapter VII). These together provide the basis for a detailed assessment of the coherence and significance of Shetland's contribution to the broch question.

The archaeological study is concluded by drawing together old and new information to assess the areas of likely progress and necessary research, in seeking a fuller understanding of the origin, function and development of the brochs, both in Shetland and in Scotland (Chapter VIII).

CHAPTER II

A Brief Survey of Broch Archaeology to Date

Brochs have been objects of antiquarian and archaeological study and speculation for two centuries or more (Anderson, 1979). To study Shetland's brochs in isolation would be to ignore the more general lessons of overall studies and work in other regions, and this chapter therefore seeks to provide a general context into which the Shetland experience can be set, to the benefit both of Scotland and of Shetland. The specifically Shetland work will be dealt with in more detail in Chapter V below.

Dr. MacKie has already provided a detailed summary of the progress of broch and wheelhouse studies (MacKie, 1973), and it is not intended to duplicate this here, but rather to outline the main trends in archaeological thought and the main events in the acquisition of the knowledge now available concerning brochs. It became apparent at an early stage that a critical approach would be of value in certain cases. This has been kept to an absolute minimum for the present, and discussion relegated to succeeding chapters. The present account is simply a record of actions and words, not their value or validity.

Phases

Broch studies fall into two main phases, one of random excavation and discussion followed by a second of justified excavation and theory building. The present, with rescue excavation and revisionism to the fore, may be the start of a new phase. This remains to be seen.

Broch Studies to 1945

Although the brochs have been objects of curiosity for many years, it is around the start of the nineteenth century that the growing English pastime of antiquarianism began to gain popularity amongst the educated gentry of Scotland. Naturally enough, the brochs excited early interest, and the first recorded "excavations", at Burgar in Orkney in 1825, were/

were probably symptoms of an already established practice. As long ago as 1775 we find Low tearing at the Shetland broch of West Burrafirth, in what may be the first problem-oriented approach ever recorded, to ascertain the function of the cells within the wall. (Low, 1774).

From the mid-century onwards, most, though by no means all, broch digging was given some form of publication, albeit summary. The early digging was concentrated in eastern coastal Caithness and Sutherland, and in Orkney, where Kettleburn, Dunrobin and Howe of Hoxa, respectively, became the first brochs to be totally cleared. Petrie, at Howe of Hoxa (Petrie 1854) and Rhind at Kettleburn (Rhind, 1854) became the first "scientific" excavators, in that the aim was not to find relics alone, but to attempt to understand structures, an attempt in which Rhind manifestly but perhaps understandably failed.

That Wilson (1851) was able to compose such a successful synthesis in the absence of published data tells us as much about the close personal contacts between early antiquarians as about the author's powers. But the work is a classic of "armchair archaeology" and a testimony to comparative architecture and logical deduction. As to origins, Wilson dismissed the Norse as builders, but in the absence of any pre-Norse chronology in the archaeology of Northern Scotland was forced to conclude that they were probably refuges from pre-ninth century Norse raiding.

As to function, the broch was envisaged as a tower of refuge. The lack of facilities for active defence was noted, and most remarkably foreseeing a question which was later to cause much confusion, the large number of brochs, relative to the restricted area of land, was used to infer the fact that the broch could not be seen as a castle in the feudal sense of that term.

With/

With Wilson's work available as a text book and, with a growing interest in archaeology, broch studies reached a new peak in the 1860's and 1870's. Laing, after digging at Keiss Harbour Mound (Caithness) and later working with Petrie in Orkney, published his conclusion that brochs were Stone Age monuments. This was based on the first observed multiple occupation layers, in which it was noted that metal objects, mainly bronze, occurred only in the upper levels. The "rude equipment" of the lower levels was seen as inferior, and hence earlier, than such Neolithic artefacts as polished axes. A second, and longer-lasting, misconception attributed the burials in the mound of the Oxtrow broch (Orkney) to the Bronze Age, while burials near Keiss were assigned to the Stone Age. Natural processes such as mound formation and coastal erosion, of which the relative rapidity was not realised, were used to invoke great periods of time elapsed since the building of the brochs. This was almost certainly a result of the then immensely popular "Antiquity of Man", in which Lyell popularised Hutton's "Principle of Uniformitarianism" and applied it to continental archaeology (Laing, 1866).

In the same year, Petrie presented his findings to the Society of Antiquaries in Edinburgh. Digging at Burray East, Burray West, Redland, Oxtrow, Shapinsay and Netlater, all in Orkney, was summarised. Wherever possible, Petrie made his own observations, doubting the veracity of verbal and even written records. He gave a list of known Orkney brochs with basic dimensions, mostly accurate. Petrie then came to the same basic conclusions on origins and function as had Wilson, but presented evidence for a date considerably before the Norse. (Petrie 1866, published 1890). His attempt to excavate a broch himself, to test his conclusions (Lingrow, Orkney) was thwarted by his untimely death, which permanently separated excavation and publication. (By this time the Society of Antiquaries had been informed of the completion of the restoration work at Mousa, which effectively destroyed the stratigraphy in the best-preserved of the brochs.)

Also/

Also in Orkney, Traill was excavating at Burrian (Macgregor, 1974), and for the first time recognising distinct layers with distinctive artefacts. The evidence was used to date brochs to the Roman Iron Age and later.

On the mainland, brochs were being torn apart with redoubled enthusiasm. In Sutherland, Cintrolla (Kintradwell), Carn Liath and Craig Carril (Joass, 1871), and in Caithness, Brounaban, Bowermadden, Old Stirkoke and Dunbeath (Anderson, 1871), fell to the spade, while Anderson himself excavated more carefully at Yarrows.

Between them, the 1871 papers of Joass and Anderson sketched out the basis for the general view of brochs which has lasted, with minor modifications, to the present. (Joass, 1871, published 1890; Anderson 1871, published 1890). Joass introduced the idea of the galleried structure as internal scaffolding and pointed out that Mousa's profile was probably due to settlement rather than design. Anderson also pointed to architectural skills, such as weight-relieving voids over lintels, and went on to suggest, following Wilson, that brochs were far from being proud castles and were, in fact, "simple refuges from the attack of predatory bands." Various European parallels such as the Sardinian nuraghi were dismissed on solid archaeological and architectural grounds which have stood the test of time.

To offset this advance, Anderson produced a false trail which persisted for many years. Arguing that brochs were pre-Norse, on grounds of burials, he further argued that they were post-Roman, since there is no mention of a broch in classical texts. By this time the reliability of Roman historians was already suspect, due in no small measure to Cassius Dio's account of the Maeatae and the Caledonii (Dio LXXVI, 12; Steer (1961) for discussion). To Anderson the brochs were Pictish responses to pressure resulting from the Anglian and Scotie invasions and forays.

In/

In 1871 there were 374 known broch sites in Scotland (against 513 in 1972).

About this time Thomas published the results of his studies during surveys of the Western Isles, with a concentration on details of construction. Elaborate tables of volume, weight and building-time were presented, with consequent population estimates. The suggestion was made that the scarcement supported a floor, not a roof as was currently thought, and that the roof rested on the wall-head, and was of timber. The similarity of galleried duns and promontory forts of Barra Head type was noted, with the suggestion that these might be ancestral to the broch, and the division between solid-based and ground-galleried brochs was made, later to become the central division of all systems of classification (for example MacKie, 1971). (Thomas, 1872, published 1890).

Also in 1872, Dryden effectively echoed Anderson's comments after studying Mousa and Clickhimin, but differed from Thomas in preferring a roof rather than a floor for the scarcement a question which has still not been conclusively answered for Shetland (see Chapter vii below). (Dryden 1872, published 1890).

By 1875, the spate of excavations had slackened, and the next decade was given over to a productive scholarly debate between Anderson and Fergusson on the Celtic (Anderson) versus Norse (Fergusson) origins of the brochs. Starting in 1877, (Fergusson 1878; Anderson 1878) this debate lasted well into the 1890's (Anon, in Shetland News, 1895-96) because Fergusson maintained his theory as Anderson piled cogent argument upon detailed proof. In effect, Anderson's arguments were more detailed and demonstrable versions of those of Wilson (1851), but were to a large extent initiated, as were many later treatments, by the insistence upon the use of the broch as a shelter for livestock. Fergusson scored a telling point:

"Of/

"Of all places in the world a broch is the least suited to shelter sheep and cattle in a time of invasion.... A few sheep or cattle huddled together in a circular court about twenty feet across would very soon defile anything that was there, and in a very short time breed a pestilence that would render the tower untenable.... The broch could not protect their corn while standing, nor their stacks when reaped; and even when threshed out a broch would prove a singularly inconvenient granary."

But overall Anderson carried the day, and the masterly survey of the known facts presented in "Scotland in Pagan Times" remained a standard text for half a century and is not without use today (Anderson 1883).

Despite the increase in reasoned discussion and general understanding, excavation techniques had advanced but little, and at the end of the nineteenth century, Barry was digging out thirteen brochs in Caithness, with no intention of other than personal satisfaction (Anderson 1901), while in the Borders, Bow and Torwoodlee suffered at the hands of unskilled enthusiasts (Curle, 1892).

The knowledge gained from these efforts was slight, the end product being an increase in the number of unstratified finds held in private and public collections. Nevertheless, Torwoodlee's production of large quantities of Roman material, in an area of Roman military occupation, produced a fairly firm date for the use of this site in the second century A.D., and already the Lowland brochs were seen as peripheral to, and later than, the brochs of the North, which would then date to the early years A.D., a verdict which time and excavation have done little to alter (Curle, 1892).

By 1911, the newly-formed Royal Commission on Ancient Monuments (Scotland) had completed the first two county Inventories, Caithness (RCAMS 1911) and Sutherland (RCAMS, 1911), of what was to be a thorough survey of the monuments of every county of Scotland. Originally envisaged as lasting for about thirty years/

years, this survey has become slower in its progress as standards of recording rise, with the result that a complete body of information is still not available (in 1979), although for brochs this is alleviated by MacKie's unpublished inventory (MacKie, 1973), which lists all known brochs by area and grid reference, with descriptions of the better-preserved examples.

This commencement of the systematic gathering of data at a standardised level made it possible, eventually, to look for regularities in the distribution of brochs and of individual broch traits, although this was little attempted in the early years of the Commission.

A few excavations took place at this time, notably Dun Beag and Dun Fiadhairt in Skye and Ayre in Orkney (Callendar, 1921; MacLeod, 1915; Graeme 1914), but more information came from Curle's supervision of the clearing and consolidation of Dun Telve and Dun Troddan in Inverness-shire (Curle, 1916 and 1921) and from Paterson's description of similar work at Mousa. All three brochs had recently become guardianship monuments of the Ministry of Works under the new Ancient Monuments Act, which had introduced the first legal protection for monuments deemed by the Royal Commission to be of national significance.

With the data derived from his survey and excavation experience, Curle contributed a review of the "broch problem" to the first issue of the journal "Antiquity" in 1927.

This carried the structural interpretation of broch architecture a stage further, all galleries now being seen as internal scaffolding, even though at some sites the lower galleries might have been built with care to provide useable space. The scarcement was seen as a support for an annular lean-to roof, supported by a ring of posts (excavated at Dun Troddan). Paradoxically, no explanation was given of the multiple scarcements at Dun Telve. (Curle, 1927).

This/

This was in essence the view propounded in official form in the Inventory of Skye and the Outer Hebrides (RCAMS, 1928), where the introduction reviewed broch-dun relationships in considerable detail. For the first time, brochs were explicitly described as highly-specialised duns, erected for the most part during a short span of the dun's longer period of currency. Commenting upon the galleried duns, and Beveridge's Tiree "semi-brochs", the Commission defined the scheme of broch evolution still favoured, in approximate form, at present:

"Although the number of galleried duns so far recorded is comparatively small, it is possible that many more may be brought to light as..... survey is extended. Their architecture resembles that of the brochs in so many respects that a common origin is plainly suggested. Taken in connection with the so-called "semi-brochs" in Tiree..... they may well be found to provide a clue to the ancestry of the broch proper, a structure so complex that it is impossible to believe that it sprang into existence as a complete and fully developed whole... But it cannot therefore be claimed.... that the short wall at Barra Head or that of Dun Grugaig is earlier than the more complete circuits of Dun Kearnstach or Dun Ringill, or that these again are necessarily older than Dun Beag, Struanmore and Dun Fiadhairt, with their elaborate galleries and walls. The differences in construction may be due to differences in the purposes which the various buildings had to serve. At the same time the series may suggest the line of evolution, even though the particular examples chosen do not in themselves illustrate the process and may be broadly contemporary, showing only the different ways of applying the general idea of double walls with a lintelled interspace or gallery." (RCAMS, 1928, p.xxxvi.)

Thus/

Thus by 1930, there was a solid body of evidence, albeit mainly in the form of unstratified finds and small-scale ground plans, a firm theory of evolution and the recognition that brochs were by their nature fitted only to a defensive role. They had been set into a temporal and cultural context.

In 1935, Childe took this evidence and interpreted it in social terms. Grouping all "castles" (brochs, duns and galleried duns), into one class, on style of architecture and distribution, he saw them as the "domiciles of a war-like chief and his retainers." In architectural terms, the hollow stone wall was seen as a skeuomorph of the continental murus gallicus, although it was already becoming clear that such forts were of a considerably earlier date. With the hyper-diffusionist paradigm of the period, independent invention of the hollow, lintel-tied, wall was barely considered. With the concept of a "conquering minority" in mind, Childe explained the secondary dwellings around brochs as the homes of the aboriginal inhabitants, who were seen as having swamped their conquerors by peaceful means of intermarriage. Thus the political process of mass overcoming the elite, central to many of Childe's theories, found its way into broch studies. (Childe, 1935).

While major excavations were proceeding in Orkney at Midhowe (Callander and Grant 1934) and Gurness (Richardson, 1948), to establish the relationships of brochs to their "ancillary" structures, Childe continued to refine his views. A conquering minority from South West England had arrived in the area in small groups over a short period, building the brochs (but not the galleried duns, whose broch features were set down to chance invention). The outbuildings housed the Lord's court, despite the firm evidence that most of these outbuildings were secondary, and that by many years in some cases (Childe, 1940).

Finally/

Finally, Childe formulated his views, explicitly in terms of Marxist theory, in his Rhind lectures of 1944 (Childe, 1946). By this date the "castle" view of brochs was firmly established and archaeologists studying brochs split into two factions, those who held to the long-established view of brochs as refuges, and those who followed Childe, by now the leading archaeologist in Britain, in advocating a quasi-feudal function. In this climate of divided opinion, with heavy reliance on old data of dubious reliability and tenuous abstract reasoning, were found the fertile conditions for the initiation of a new phase of enquiry.

1945 to 1975

Sir Lindsay Scott's methodical study of brochs in Barra and Harris, based upon field work and upon comparison with published information from other areas, was the first serious attempt to study brochs in their environment. However, lack of definition as to what a "broch" was, and lack of excavation evidence, vitiated a promising approach. Since brochs correlated so heavily with arable land, and lacked contemporary structures, they must be in the main farmhouses, and through a mis-reading of the evidence wheelhouse-type structures inside brochs were held to be original fittings. Scott concluded that brochs were in fact heavily-built versions of wheelhouses.

A classification was evolved on the basis of visible structure and debris, on the argument that debris reliably represented the original volume of masonry. The classes also formed Scott's developmental sequence.

Class I Low brochs, never more than three metres high with a wallhead reached either by ladder or by a stone staircase. Walls relatively thin. This class contained ninety per cent of brochs. -

Class II /

Class II Heavily defended farmhouses, up to five metres high, although roofed at about four metres, with a wallhead characterised by an open-topped gallery reached by an internal stone stair.

Class III A very restricted number of towers in excess of six metres.

A crushing blow was dealt to Childe's "castle" concept by a comparison of the density of brochs in Caithness to Norman mottes around Caen (the area of greatest density), which made manifest the impossibility of the brochs' ever having been able to support a warrior aristocracy sufficiently strong to control their subjects. A context of land-hunger and internal strife was favoured, with little outside contact, the broch farmers being "a self-sufficient people, and nearly self-contained within the sharply-defined broch area."

Considering, for the first time, in detail, broch pottery Scott observed "a considerable measure of originality", but derivation ultimately from Iron Age "B" of Southern England was favoured. Unfortunately, the cavalier treatment afforded to the clear building sequences at Mousa and Jarlshof combined, with the fact that most of the "broch" pottery examined came from secondary structures, led to the conclusion that broch and wheelhouse cultures were contemporary and indistinguishable: in effect identical. (Scott, 1947).

Graham, replying at the reading of Scott's paper, (Scott, 1947 notes following text) pointed out that the structural features of all brochs could only be devices to achieve height, as they would represent wasted effort in any other context, although he did not argue for all brochs being as tall as Mousa. The true date of the Shetland wheelhouses was also noted.

Graham's/

Graham's own research results were published in the same year. Statistical methods were used for the first time, to compare the distribution of individual structural traits within six regions. The simple tabulation of available data represents a major advance in itself, and was effective in producing evidence for a differentiation between Western and Northern brochs, with Orkney intermediate to some degree. As each architectural feature was described and classified, Graham discussed its significance, making notable contributions to the understanding of the scarcement, opting for it supporting a raised floor rather than a roof.

While Graham concurred with Scott in holding that few brochs were as tall as Mousa, he observed that "there is not reason to believe that any were too low to be characterised as towers." He also differed strongly over the question of debris, arguing that Scott had miscalculated and that many brochs held sufficient tumbled stone to raise them well above Scott's Class I height.

Regarding function, Graham's arguments were less detailed. Defence against escalation did not seem an adequate explanation although it was suggested that a broch, with relatively few occupants, might require to be stronger than a dun, with many defenders. Only in some situations did increased height aid fire-power or visibility. Finally, Graham concluded that prestige might not be insignificant in determining the size of fortifications, an idea revived below (chapter iv). (Graham, 1947).

On balance, Graham's arguments have better survived the test of subsequent excavation. Scott's development of his cultural thesis of broch-wheelhouse contemporaneity (Scott, 1948) has been negated by further work at Jarlshof and Clickhimin, but his approach of relating structures to their environment remains a potentially fruitful ground for research. Graham's statistical approach is also an avenue where development remains possible.

So/

So thorough and penetrating were the analyses of Scott and Graham that broch studies remained static for some years. A few general remarks by Lethbridge (1952) presented no new ideas, despite the extensive discussions of the 1950 Viking Congress in Lerwick (Simpson, 1954).

Simpson returned to the "castle" view of brochs, in a modified form, with an aristocratic minority involved in mutual raiding for slaves, cattle and valuables. He argued against Roman slave-raiding on grounds of distance, and although Strabo stated that Britons exported slaves to Roman markets, he could not see why middlemen, such as the Belgae, should come so far north (Simpson, 1954).

O'Neil, on the other hand, advanced the opposite view, with brochs as defences against external slave-raiding consequent upon the extension of Roman power into Southern Scotland (see chapter iv, below). However, this question seems almost incapable of archaeological proof or refutation (O'Neil, 1954).

Simpson also contributed a discussion of the origins of brochs favouring Orkney as origin-centre, with extensive experimentation marked by structures such as the Clickhimin fort and blockhouse. (Simpson, 1954). However, until recently, such fore-runners were unknown in Orkney (see below).

Piggott, in 1955, made the first attempt since Childe (1940) to fit the brochs into their overall Scottish context. The unsettled state of Southern Britain in the last centuries B.C. was seen as promoting movements of aristocratic warriors, (evidenced by horse-gear, decorated metalwork and forts) from England. Under the pressure of Belgic invasions, these moved into Scotland, mainly via the West Coast. Brochs were seen as a logical development from duns under the influence of the new ideas and/

and social structure introduced by these immigrants. Similarities in bonework to Iron Age B of Yorkshire and the likelihood that broch pottery was of local origin, descended from Neolithic and Bronze Age types, were the main new ideas on material culture. (Piggott, 1955).

The deficiency of published excavations of good quality began to be remedied by Hamilton's publication of many years' work at Jarlshof, Shetland, where a complex sequence from late Bronze Age to late Medieval included a partially destroyed broch. The broch was firmly dated before an aisled roundhouse, itself earlier than three phases of wheelhouse. Unfortunately the site history of the immediate pre-broch period was one of abandonment owing to sand-accumulation, so the relationship of the builders of the broch to the earlier population remained obscure. (Hamilton, 1956).

Socially, Hamilton saw the broch as a result of the arrival of "broch Lords", bringing new pottery styles and "recruiting" semi-local labour. The post-broch pottery showed a partial resurgence of local styles, thus giving support to Childe's social hypothesis of arrival, dominance and gradual absorption of a foreign upper-class. The details of the excavation and conclusions are discussed in Chapter iii, below.

To fill the crucial gap in chronology, Hamilton began work at Clickhimin, from which preliminary results were available by 1962. The sequence is open to doubt, and is discussed below with Jarlshof (Chapter iii). However the sequence given by Hamilton involved two phases of fort-building before the erection of the broch, all three changes in fortification being accompanied by the arrival of fresh immigrants.

The/

The evidence for timber ranges behind the wall of the early fort at Clickhimin made the suggestion possible that the broch was a response to fire-hazard. The development sequence of dun-galleried dun-broch was expanded to include the internal wooden structures, most of which, at Clickhimin as elsewhere, had perforce to be based upon reconstruction drawings. Culturally: "the native and 'south-western' elements blended to form a composite culture which, threatened by external pressures, drew upon an acquired experience of fort building to produce the broch system of defence."

On the basis of pottery sequences, Hamilton inferred that the immigrant element associated with brochs in Shetland came from around Scapa Flow, in Orkney and that the brochs originated there. (Hamilton 1962). The full report was not published until six years later (Hamilton, 1968).

The most recent major contribution to broch studies, and the most comprehensive, is the work of Dr. MacKie, published in a series of articles (MacKie, 1965a; 1965b, 1971a; 1971b; 1972; 1975) all based upon the work for his doctorate, which was awarded in 1973. It is upon this fuller version that all comparisons used in this thesis are based (MacKie, 1973), although where relevant reference is made to the appropriate articles. The series of articles represents a gradual move from a theory of a wholesale immigration towards the idea of the stimulus of small influxes as the factor generating the necessary conditions for the creation of the brochs, and as an explanation for the details of the material culture of the period.

MacKie's work is founded upon extensive study of the better preserved brochs and takes much evidence from the results of Jarlshof and Clickhimin and from MacKie's own excavations at Dun Mor Vaul, Tiree (MacKie, 1974) and at Dun Ardtreck and Rhiroy. The research was directed to resolve three allied problems,

1). /

1) the absolute lack of good data, 2) the lack of systematic architectural analysis and 3) the poor standard of publication. A thorough survey of the material culture was undertaken with visits to many of the sites. In terms of data, MacKie's 1973 thesis provides the only corpus of broch sites in Scotland, together with the only systematic review of the artefacts associated with brochs and wheelhouses.

Based on a thorough analysis of visible architectural features MacKie concluded:

"The overall pattern of the dimensions and structural design of the brochs suggests not so much two "strains" of brochs as a pattern of gradually increasing sophistication from west to north, both in the details of the structural features and in the sense that the northern brochs tend to be freer of naturally defensive sites, more massively built and probably taller. The ground-galleried and transitional brochs seem to be the more usual western types, lighter in construction and probably lower, with a tendency for the scarcement to be of the ledge type, and less than 7 feet above the floor, and for the door checks to be close to the front end of the entrance passage. In the north most brochs seem to be solid based, the scarcements get higher and are slightly more frequently corbelled and the doorway has greater defence in depth. The Shetland brochs probably show the greatest extremes in these features, though the comparison with other regions in the north is made harder because of the disproportionately large number of excavated brochs in Caithness and eastern Sutherland. It is difficult to resist the conclusion that these regional variations reflect the adaptation of the broch to different types of terrain and natural resources of building stone, and it remains to consider in which direction the adaptation and spread took place." (MacKie, 1965a, p.110.)

Dismissing/

Dismissing the argument that brochs originated in their area of maximum concentration, on the valid grounds that in Caithness and Orkney brochs were probably no more frequent, relative to population, than elsewhere, MacKie proposed Skye as a centre for the area in which brochs originated, developing from the D-shaped specialised galleried duns (confusingly termed "semi-brochs"). The sequence was: hilltop duns; semi-brochs (coastal); brochs proper. This gradual development of a high, hollow wall made a move from naturally defended sites onto the flatter coastal lands possible without loss of defensive capacity.

This whole theory of development depends on the earlier date for semi-brochs (demonstrated at one site, Dun Ardtreck, MacKie, forthcoming) and a logical argument which is open to question (see chapter iii, below). The basic mechanism of spread involved the movement of the idea of ground-galleried brochs to Orkney, where experiments after failure of structures (as at Midhowe) led to the evolution of the solid-based form.

The pottery of the brochs (mainly of the western examples) was studied in detail, and the forms seen as derived from earlier Iron Age everted-rim styles, the decoration more directly from Wessex Iron Age B parallels. The alternative interpretations are set out in chapter iii below.

The general cultural context suggested by MacKie was the immigration of numbers of English "Woodbury" groups into the north and west. This introduced the idea of circularity and the basic pottery forms.

Then, under ill-defined circumstances, defence became a priority and the broch evolved as a cross-fertilisation product of native and immigrant ideas, spread rapidly to mixed communities of partly native origin (thus accounting for varied pottery styles with brochs) and received further modifications en route. MacKie denied the "Lord and serf" view of society, suggesting that the brochs were built for the local people by specialist architects (MacKie 1975, 1976).

By/

By this means, the distribution of the post-broch wheelhouses could be regarded as marking areas of densest immigrant settlement, where circular versions of ancestral wooden roundhouses were built, while elsewhere the population reverted to pre-broch house-types. (MacKie, 1973).

Clarke took exception in detail to the artefactual elements of MacKie's scheme, pointing out that much of the evidence was of diffuse origin and uncertain date. (Clarke, 1970). MacKie's reply accompanying a summary of his work, did not answer these criticisms of detail, arguing that the total of indications outweighed the uncertainty of specific elements (MacKie, 1971).

The details of this, and a review of the main themes in broch archaeology still unresolved, is ascertained in Chapters iii and iv, below.

Meanwhile, Hamilton had published Clickhimin in final form, although the results had been current for some years. The main new material concerned the socio-political status of brochs, which Hamilton suggested derived from a desire to provide defence against a threat external to the broch province. Citing the famous "treaty" between Orkney and Rome (Tacitus, Agricola, 10) as evidence that the brochs represented a different political entity from the rest of Highland Scotland (as defeated at Mons Graupius), Hamilton argued that such a split would explain the view of Tacitus that all of Scotland was conquered after Mons Graupius. Thus the brochs were a protection against the raids of the (inferred) hostile Caledonii, which aimed at taking slaves and hostages. This split in Highland Scotland could also be used to explain the Lowland brochs as evidence for the recruitment of warriors by pro-Roman Lowland tribes (principally the Votadini), to defend frontiers on the first (post Flavian) Roman withdrawal. This east-coast connection was supported by comparisons of pottery with Traprain's and by the spread of small objects of Roman origin into post-broch contexts in the North.

Hamilton/

Hamilton further reinforced his northern origin for brochs by reference to the Shetland blockhouses (although brochs were still held to be Orcadian in genesis). (Hamilton, 1968).

The debate between MacKie's western and Hamilton's northern broch origin has not yet been resolved, and hinges largely upon the sequences of Dun Mor Vaul (MacKie, 1974) and Clickhimin (Hamilton, 1968). Although both authors give architectural sequences, their support, and ultimate proof, derive from this artefactual material. These are reviewed below, in chapter iii. It must, however, be remarked that Hamilton argues for an Orcadian origin on the basis of Shetland excavations, while MacKie argues for an origin in Skye on the basis of excavations in Tiree, although the latter case is supported by overall field work on a scale not attempted by Hamilton.

Broch Studies in 1980

With the establishment of government financed rescue excavation, under the aegis of DOE (now SDD(AM)), and the involvement of the Hunterian Museum, the last decade has seen an upsurge in work on Iron Age sites in the North unparalleled since the 1860's. Not only brochs, but potentially significant fortifications of other forms, have been investigated.

Two older excavations, as yet unpublished, are now available, Burrian (Macgregor, 1974) and forthcoming, Gurness (Hedges, in preparation), and a number of sites already excavated are now being prepared for publication. Brochs at Crosskirk (Caithness), Hurley Hawkin (Angus), and Leckie (Stirlingshire) have been totally excavated, as have semi-brochs at Rhiroy (Wester Ross) and Ardtreck (Skye). Partial excavation has taken place at Bu of Cairston and Saegar Howe (both Orkney) of sites probably brochs, and on the allied site of a dun at Dun Lagaidh (Wester Ross). All of these are (at least notionally) in preparation for the press. Ongoing excavations are in progress at Buchlyvie (Stirlingshire) and Howe of Howe (Orkney), the latter having what appears to be a pre-broch fortification. In addition, two promontory forts on the Moray Firth have given evidence which may eventually aid an understanding of the material culture of the North. These are Cullykhan (Greig, 1971) and Porknockie (Ralston, 1980), the latter still in progress.

Fieldwork by the Royal Commission proceeds methodically, but there is no future prospect of Inverness or Ross being surveyed, although Argyll is currently being published. Emergency surveys have located a further three possible brochs in Stirlingshire.

While it is perhaps unfair to comment upon these excavations before definitive publication, the excavators have generously made their results available, and a brief summary of the main findings, as they affect broch studies in general, is apposite here.

Crosskirk/

Crosskirk produced a ruined forework, remarkably similar in some respects to that at Nybster, also in Caithness, associated with a distinctive pottery style, rather different to that of the broch, which it probably predates. The broch itself is of an unusual clay-cored wall construction and is characterised by internal slab fittings emplaced immediately after the construction of the broch (see Love, 1978) and by the early post-broch date of at least some of a large number of external buildings. (Fairhurst, pers. comm.)

Gurness, like Crosskirk, seems to have defences as early as, if not earlier than, the broch, and also has external structures which may be effectively contemporary with the broch, (Hedges, pers. comm.) Rescue digs at Saevar Howe and Bu of Cairston have revealed the fact that most Orkney broch pottery is plain, a fact not always realised, due to the selective publication of decorated sherds from older excavations. Bu, in addition, has provided evidence for cooking by the "burnt stone" method of tank boiling, inside the broch courtyard (Hedges, pers. comm.) The Howe of Howe excavations seem to be producing something of a Gurness type of fortification which may be pre-broch (ibid.)

Most interest has been centred on the brochs of the upper Forth valley, in Lowland Scotland, where at Leckie (MacKie, pers. comm.) evidence for Roman destruction is unequivocal, while at Buchlyvie, the broch overlay a round wooden house of normal Lowland Iron Age plan, and would seem to have been built around the late 1st or early 2nd centuries A.D. (Main, pers. comm.) More brochs have been added to the Inventory, which now shows a marked concentration around the area later to be known as Manau, with a thinner spread around the borders of the territory of the Votadini. It seems that the concept of broch-building warriors, recruited as border forces, may well have some validity.

Elsewhere/

Elsewhere, the semi-brochs have produced appropriate pottery and radiocarbon dates for their role as possible broch-ancestors to be upheld (MacKie, 1973, and pers. comm.) while the Moray Firth forts have produced pottery which seems to be of forms ancestral to the coarse wares of Northern brochs.

In so far as there is a new trend, it is towards rapid data-collection and away from synthesis, perhaps no bad thing in the light of the problems caused by lack of accurate information. The future path of broch studies will presumably follow the general trend of Scottish archaeology in moving away from purely architectural artefactual comparison and towards an integrated archaeological-environmental approach, as exemplified by the number of specialists involved in the preparation of the Crosskirk report (symposium in Glasgow, 1977). The present research, presented below, aspires to be an early contribution to a new understanding of the broch in its role as a major focus of human daily life, and towards the true aim of archaeology, the full reconstruction of "the life of past generations."

Postscript

After the preparation of this section, radiocarbon dates from Bu of Cairnston have become available. This site, while apparently circular and of appropriate size and proportions lacks clear broch features, and its identification as a broch has been challenged (MacKie, pers. comm.)

The dates, all from securely stratified locations, are:-

- 1) 490 ± 65 b.c. (bone in fill of wall)
- 2) 595 ± 65 b.c. (bone in secondary structure)
- 3) 510 ± 80 b.c. (bone on floor of "broch").

Thus Orkney has now produced a plausible ancestor for the broch, a fact not insignificant to much of the above discussion, and to what follows. (Hedges, pers. comm.)

CHAPTER III

Critical Review of some Current Theories regarding the Cultural Affinities, and Structural Evolution of Brochs

As already observed, two alternative explanations of the origins and purpose of brochs are available. The purpose here is to review these in detail, as the question of which scheme is more valid has a crucial effect on the place of Shetland's brochs in the overall development. Shetland itself has furnished much of the fuel for disagreement.

The two views can conveniently be termed the Northern, or Hamilton, scheme, and the Western, or MacKie, scheme. It must be noted that in large measure these are compatible. The origins of the broch idea are sought by both authors in earlier fortifications, and the origins of the associated cultural influence as derived from southern and western Britain. The major points of divergence are over details of the evolution of the structure, and over the detailed purpose and function of brochs.

MacKie, on the basis of extensive field work, has argued for a sequence of architectural evolution in the west, with the semi-broch as immediate pre-cursor to the broch. Once invented, the broch is seen as spreading rapidly to Orkney and Caithness, where further development takes place. The latest brochs are ascribed to Shetland and to the Lowland Zone (MacKie 1965 a, 1971). Hamilton, on the basis of excavations at Jarlshof and Clickhimin and reference to published material, has proposed an origin in Orkney, whence the broch spread outwards. The pre-cursor of the broch in this scheme is the blockhouse fort of Clickhimin type. The differences in architectural detail are explained by MacKie as traces of evolution, and by Hamilton as adaptation to local conditions.

The influence of the preferred area of interest is plain: most of Hamilton's work was in the North, while MacKie has worked primarily in the West. Archaeologists perforce argue from their greatest depth of knowledge. A reconciliation of both views should provide a fairer overview of the possibilities available for the general cultural climate and architectural capabilities obtaining in Scotland at the time of the development of the broch.

In/

In particular, it would have a salutary effect to consider exactly what is known about brochs, in the absence of hypotheses. The major difficulty faced in comparing Hamilton's and MacKie's theories is that they are based upon rather different information; excavation supported by bibliographical field work in the first case, field work supported by excavation and artefactual comparison in the second.

Three major excavations, Jarlshof (Hamilton, 1956), Clickhimin (Hamilton, 1968) and Dun Mor Vaul (1974), provide almost all of the stratified material available to study. In addition, MacKie's field work provided the basis of his western origin hypothesis. To approach a comparison of the two schools of thought, it is necessary to examine in detail the excavation reports from all three sites. Even although Dun Mor Vaul does not form the basis of MacKie's arguments, it cannot be omitted as it forms the only western counter-balance to the Shetland excavations of Hamilton. The field work of MacKie's 1973 thesis must also be examined, especially as regards architectural detail.

The following pages attempt a summary of the evidence from each site, the excavator's interpretations, and the available alternative explanations of the published sequences. This is not done in a spirit of petty fault-finding, but in order to assess the extent to which preconceptions may have influenced interpretation. The alternatives are submitted with the aim of reducing the complexity of each sequence and suggested history. While it clearly cannot be an invariable dictum that simplicity is correct, in the absence of evidence to support complex reconstructions of the past, the simple forms the most attractive option, and probably has a greater chance of being near to the truth. The excavator must always know more than the re-interpreter, but to quote Dr. MacKie (1976):

"the existence of at least two alternative explanations for a given set of data is essential if the true scientific spirit of enquiry is to flourish."

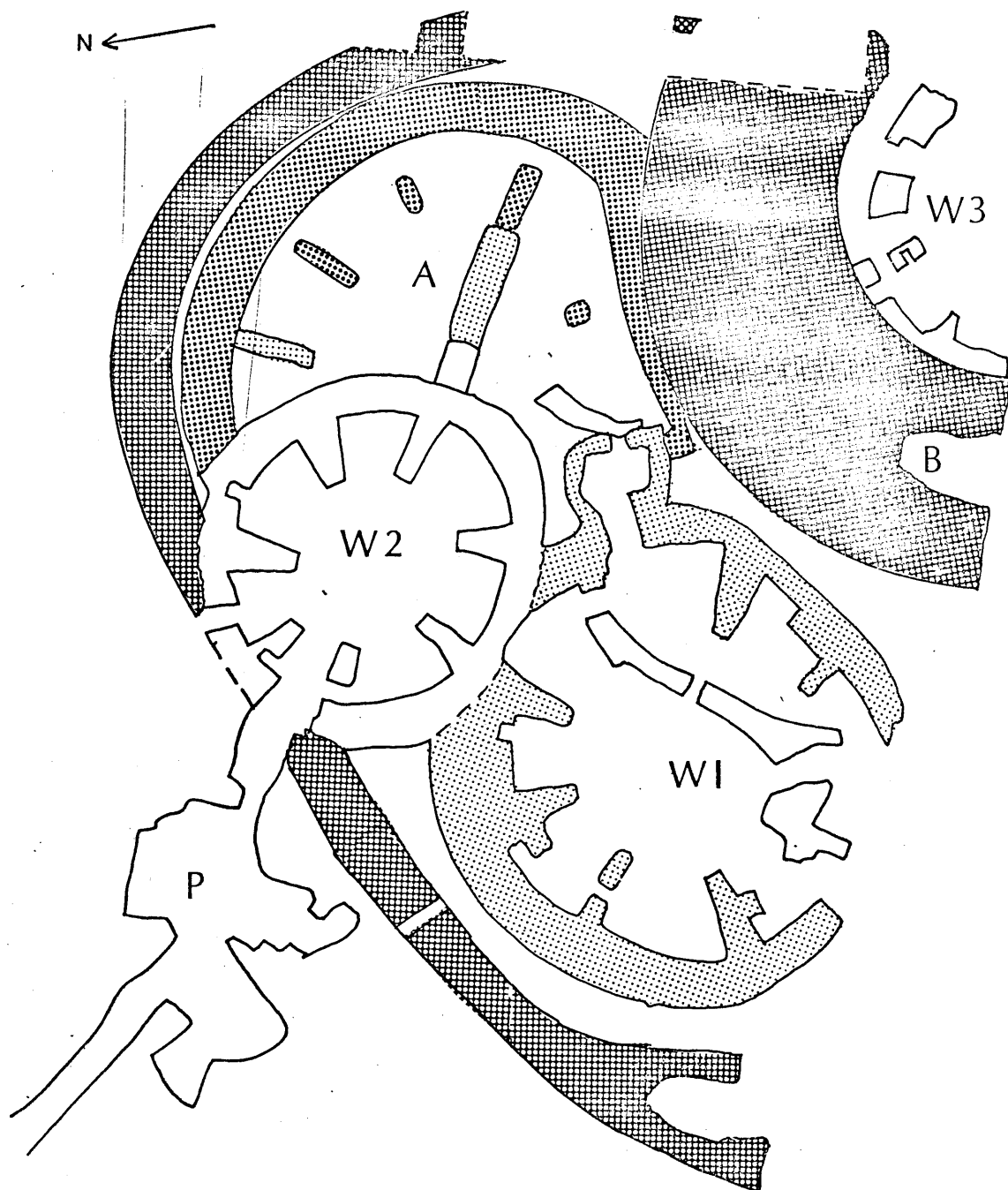
In addition, consideration is given to MacKie's (1971, 1973) sequence of architectural development based upon field measurement of structures.



Jarlshof : The outer face of the broch wall (left) and part
of the later structures abutting against the wall.

JARLSHOF
SW AREA

$\frac{1}{80}$



0 1 2 3 4 5 m

Jarlshof (Hamilton, 1956)

As noted above, the Jarlshof site had been variously plundered, dug, and excavated over a period of fifty years. While Hamilton composed the final synthesis, he was only responsible for a part of the material therein. In particular, most of the fill of the broch interior and the courtyard outside had been removed prior to his excavations. In consequence the 1956 Report was summary rather than detailed, concentrating on the work undertaken from 1950-52, on the buildings to the north west of the broch, which provided the most complete sequence of post-broch structures then (and still) known.

The evidence from the broch itself was restricted to noting the presence of a bone weaving comb and a single sherd of neckband ware among the unstratified finds from Bruce's excavations. A lengthy discussion on the significance of this ware is vitiated by the fact that a wheelhouse was later inserted into the broch, and the artefacts could have come from this phase.

Outside the broch a sequence was revealed which admits of little doubt, all phases being clearly demonstrated by building joins and by stratigraphy (Diagram 1, iii, 1). A courtyard wall, with an expanded entrance reminiscent of that of the fort at Clickhimin, curved from the north west through north to turn sharply back towards the broch at the mid-point of its preserved half, where it butts against the outer face of the broch. Although the broch wall junction could not be observed, the level of the wall base allows of little doubt as to its near contemporaneity with the broch. Below a later wheelhouse, within the enclosed area, a hearth ascribed to the broch period was discovered.

Not long after the building of the broch and courtyard wall (a very few centimetres of sandblow intervening), and partly utilising the latter, an aisled roundhouse was erected in the angle of the courtyard, filling the space between the broch and the courtyard wall, and partially supported by the outer face of the broch. The masonry was rather less regular than that of the broch, including more beach material, but an echo of broch architecture/

architecture was present in the form of a scarcement ledge. Below the wheelhouse to the west, a drain of the roundhouse period and traces of floor levels and masonry were interpreted as a byre pertaining to the roundhouse, the whole structure being compared to the buildings at Clettraval, North Uist (Scott, 1948). MacKie (1965a) has argued that the courtyard wall was breached by the builders who inserted the roundhouse, but the published sections seem to support the excavator's contention that it was the building of wheelhouse II, rather than of the roundhouse, which is associated with this destruction of the outer defence (Hamilton, 1956). However, the whole of the roundhouse-phase is not quite so clearly reported as would be necessary to decide this matter. The implication of a roundhouse considerably later in date would be to refute the social interpretation favoured by Hamilton (see below).

The next phase saw the erection of a wheelhouse over the site of the roundhouse byre, followed by the reduction of the roundhouse (perhaps because of danger from falling masonry from the broch, perhaps simply by stone-robbing). Thereafter a second wheelhouse was inserted between the remains of the roundhouse and wheelhouse I, and the ruined roundhouse refurbished to provide additional accommodation. At about this time the broch seems to have been reduced and a third wheelhouse inserted within its central court. At a still later date, sunken "passage houses" were dug into the sand/midden deposits to the east of the broch and also to the north west of wheelhouse II, joining this structure where it breached the broch-period courtyard wall.

The vital fact concerning the Jarlshof sequence is that every event after the broch is attested by the relationships of both horizontal and vertical stratigraphy. There can be no doubt about that part of the published sequence from broch to passage-house. Throughout this period, only the broch and courtyard areas seem to have been utilised on the site.

The pottery sequence is a little less certain, with relatively few sherds from occupation floors and most from midden deposits.

Pottery/

Pottery was related to structures thus:

Broch	C?
Roundhouse	B, C (undecorated)
Wheelhouse I	A, C (undecorated)
Wheelhouse II	A, C (decorated)

(Classification as in chapter vi below)

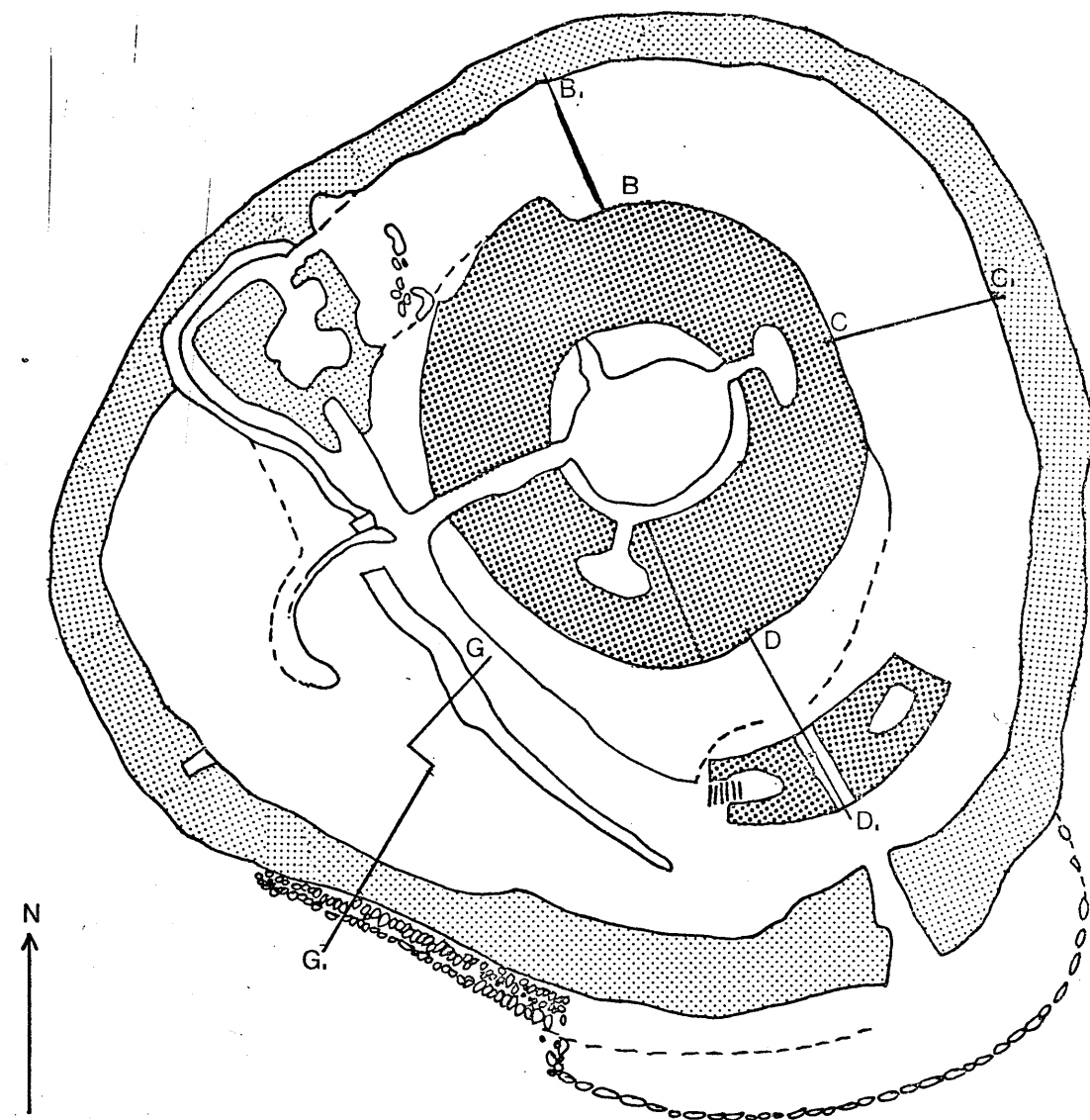
<u>Hamilton</u>	<u>Here</u>	<u>Fabric</u>
Class I	B	Steatitic
Class II	C	Red-brown, hard
Class III	A	Buff-grey
Fluted rim	B/C	Slightly steatitic
Block burnished	D	Basically A fabrics)

The main observation is that class C pottery seems to appear with the broch or just after, and is unknown previously. This fabric does not become decorated (by cordons and incision) until the phase of the later wheelhouses, so the stray sherd of neckband ware from the broch interior (Bruce, 1907) probably belongs to the inserted wheelhouse, rather than to the broch.

The social implications of the broch, as conceived by Hamilton, were of a group of immigrant overlords recruiting labour from further north, with the workers later staying on in the aisled roundhouse which they built in emulation of the broch. This was largely based upon the pottery evidence and particularly the steatite grit therein. This suggestion can now be clearly refuted (see chapter vi, below) on solid comparative grounds, but the actual site as excavated and presented can be accepted as correctly interpreted as regards building sequence, being clearly stratified and conscientiously reported.



Clickhimin : The site from the south-east.



CLICKHIMIN,
Sections discussed

6) A raised ringwork is begun on the central part of the site behind the blockhouse.

7) The ringwork was abandoned half-built on the arrival of new elements who erected temporary huts in the western part of the area, in which to live while "supervising" the construction of the broch. Midden deposits began to accumulate over the site of the ranges.

8) Broch modified to a wheelhouse by insertion of a massive casing wall into the court, opposite the entrance. A roadway is laid down to the west of broch, leading from the fort gateway towards the Bronze Age house, and serving to retain the growing midden.

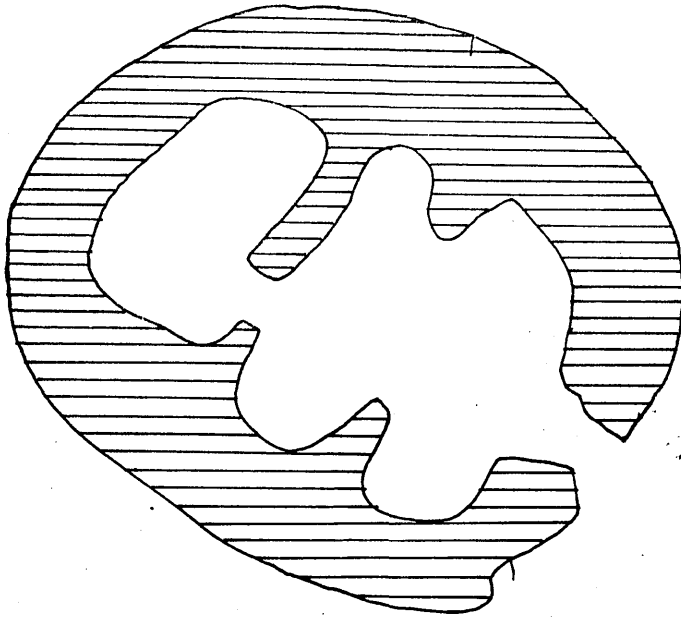
9) Small huts dug down into middens around fort perimeter, and causeway with foot-marked stone laid down.

Each phase can be examined for consistency with the evidence presented (Sections in Appendix 4).

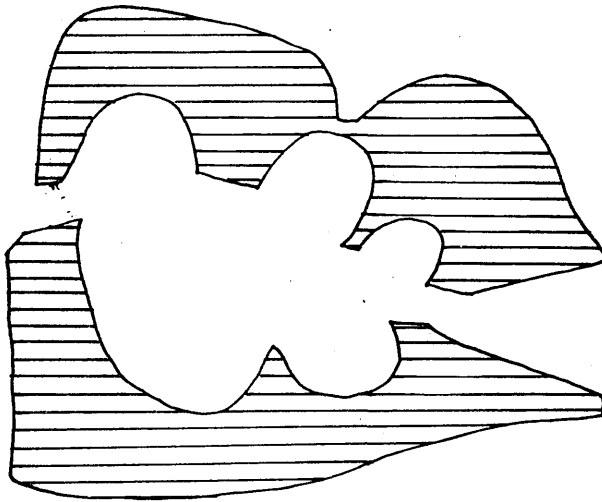
1) At the earliest levels of the site, there seems to be little doubt that it is a peninsula, formed by a ridge of gravel lying slightly higher than the surrounding land, which may be either marshland or, more probably, an inlet of the sea.

2) The transepted house is certainly the earliest structure revealed at Clickhimin, but its Late Bronze Age date must be uncertain. Hamilton compared its form to the houses at Jarlshof (Hamilton, 1956), and Wiltrow (Curle, 1936) and, ignoring the evidence for iron-working at Wiltrow, opted for a Bronze Age date on the evidence for bronze working at Jarlshof, although there is little to choose between the two plans, or between the pottery of the two sites (see Diagram 1, iii, 3, for plans). Indeed, the bronze-working at Jarlshof might be as readily assigned to the Early Iron Age as to the Late Bronze Age. The apparent increase in regularity with time observed in the oval houses of Shetland disappears with closer study (Winham, pers. comm.)

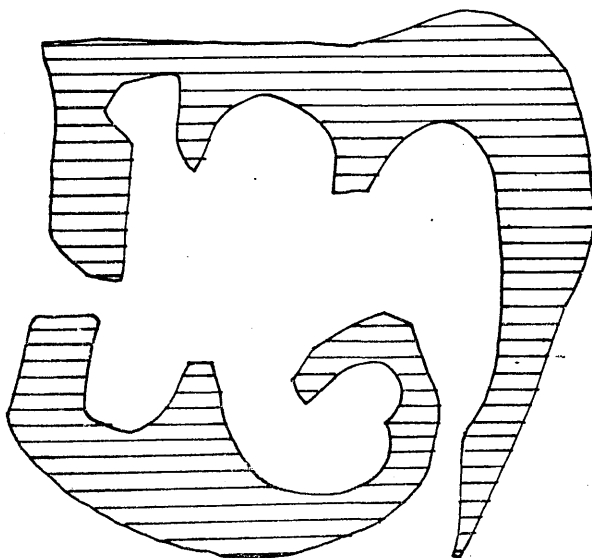
3) /



WILTROW



CLICKHIMIN



JARLSHOF



Clickhimin : The Late Bronze Age / Early Iron Age house.

3) The Early Iron Age roundhouse is not convincing in its existence, regardless of its date. The evidence advanced by Hamilton is:

- 1) Arc of walling protruding from the north side of the broch.
- 2) Rubble and trampled floor area inside the broch.
- 3) Pottery.

The arc of walling projecting from the broch is of the same masonry style as the broch itself, and appears to be bonded into the broch wall. Similar spurs have been noted at other brochs, notably Kintradwell (Joass, 1872). On the floor of the broch court, below the broch floor levels, excavation revealed a rubble scatter and a trampled floor area incorporating heather (thatch or bedding) and pottery of Early Iron Age type (see below). Mr. Hamilton kindly supplied the unpublished plan of these remains, and this has been combined with the published plan of this phase to produce Diagram 1, iii, 4. As can be clearly seen, the rubble scatter bears no relation to even the approximate line of the projected arc of the roundhouse wall, and the floor deposits lie partly below the projected wall-line, leaving the western half of the proposed roundhouse floor unrepresented by trampled deposits.

That there was a structure of some sort here is certain, but the plan of the remains suggest this lay to the right (or east) of the roundhouse proposed by Hamilton, was probably oval, and may have been allied to, and contemporary with, the oval "Late Bronze Age" farmstead. The spur-wall is probably a symptom of the marked irregularity of the broch thickness, the western sector being much thicker than the eastern, perhaps due to a decision to economise on labour. This may in turn relate to the slumping observed in the stonework on the eastern outer face of the broch.

The associated pottery is of simple Iron Age type; carinated and non-carinated bowls. Most of the sherds come from the external panels excavated into the beach deposits on the edge of the/



Clickhimin : The spur wall at the foot of the broch.

the islet, and the uncertainty of the stratification here is demonstrated by Hamilton's inclusion of certain decorated sherds, from higher in the sequence, in this phase because they seemed to match. In fact, there was no clear stratigraphic separation of material from this and the previous phase, and the split in pottery-style has been made entirely artificially, on the coarseness of the sherds. In fact, there is no reason that the "Late Bronze Age" pottery could not represent the coarse-ware portion of single assemblage of Early Iron Age date, with the "roundhouse" pottery representing the finer ware of the same period. This would also agree with the suggestion above that the sub-broch structure is part of the same settlement as the preserved oval farmstead.

4) The ringwall of the fort is nowhere demonstrated to be earlier than the broch, since its foundations were not reached. It must be at least as early as that structure. Middens containing broch and post-broch pottery are piled against it, so the putative date of pre-broch can be maintained.

The ranges were identified on the grounds of postholes and hard-packed floor levels. The eastern range seems to have been represented by a series of postholes just inside the fort wall, and by a single posthole standing clear of the wall. There was no floor material, this being supposed to have been removed to construct the landing-stage (see 5, below). The plan is entirely hypothetical. The western range certainly existed. There is a complete set of postholes for the facade and floor areas are well preserved and include an area which was probably a byre. The ground level may have been divided into several compartments.

As might be expected, there is very little material directly tied to this phase, most of the pottery coming from the beach deposits. This includes black-burnished ware and everted fluted rim ware (D and B/C) as well as more of the simple A and B sherds. None is securely stratified.

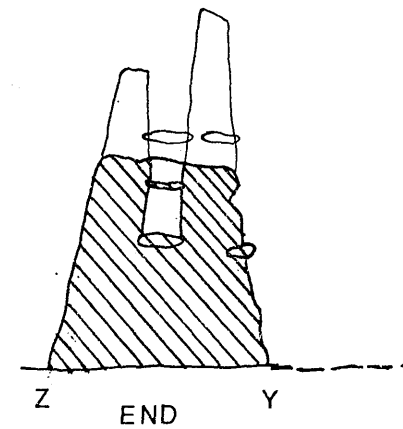
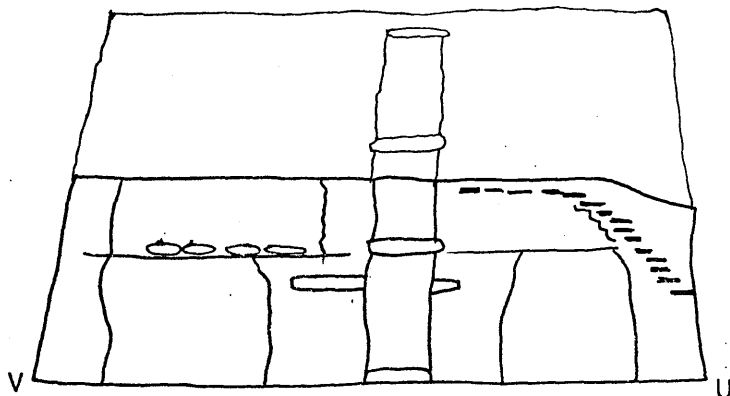
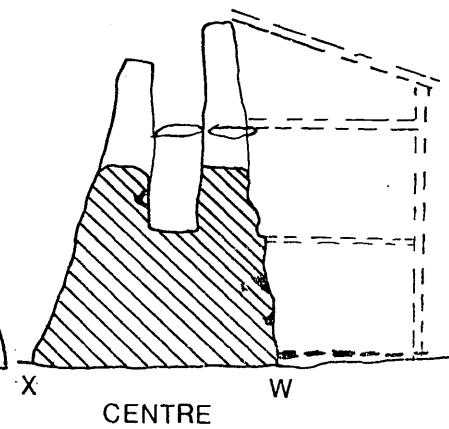
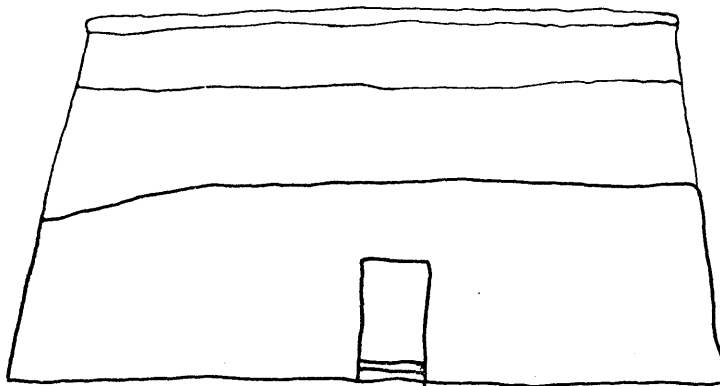
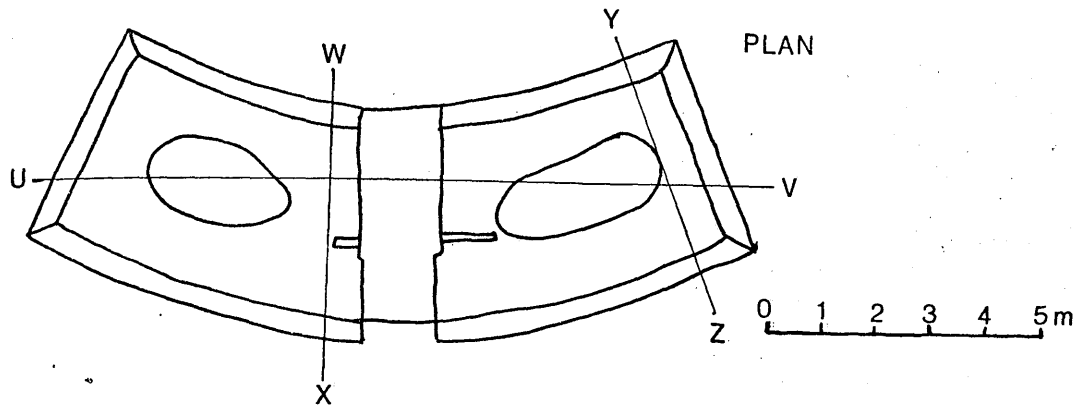
The/

The blockhouse is the major problematic element. The masonry style resembles that of the broch. Hamilton's reconstruction (Diagram 1, iii, 5) is based on the evidence of a paved area to the rear of the structure. No postholes were located, although these are not strictly necessary, if a sleeper-beam construction were utilised: the excavator suggested post-holes were present, but buried below the unexcavated "ringwork" or apron. As with the lateral ranges, the sectional reconstruction of the range was based upon the preconception that the wallhead served as a fighting-platform. While the rear scarpment argues for some form of gallery, it has been repeatedly noted (Lamb, Henderson, Anderson, pers. comms.) that the high box-like structure proposed by Hamilton would have been highly unstable, even in average Shetland winds.

A close examination of the site, together with examination of Section DD, reveals that the paved area behind the blockhouse was overlain by rubble from the "ringwork". However, there is no reason that this collapse should not be considerably later, associated with post-broch hut construction (see item 6, below).

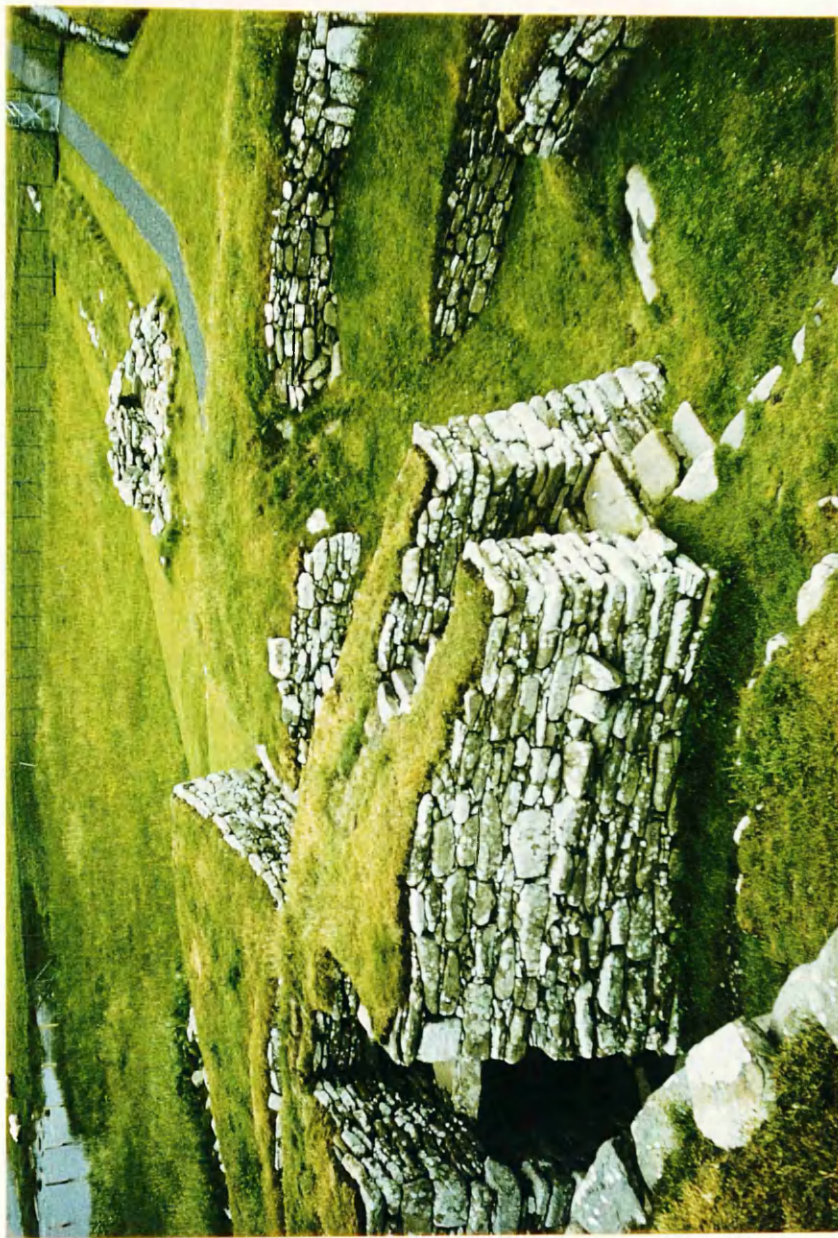
Mackie (1965b) has noted that the "change in plan" of the ringwall is not as evident on site as in plan, being due to irregularity of wall-base thickness rather than a real change in direction. In addition, the stairway in the end of the blockhouse which would be illogical (unless added later) in Hamilton's proposal that the structure is the gateway for an abandoned plan of ringwall, is compatible with Mackie's suggestion that the intended structure was in fact a galleried fort analogous to the Hebridean semi-brochs. It is interesting that, although the architectural capacity is manifest, neither blockhouse nor, apparently, the broch, has guard cells.

Stratigraphically/



— Real
— Reconstructed

BLOCKHOUSE,
CLICKHIMIN,
after Hamilton, 1968



Clickhi-in : The blockhouse, entrance through the fort wall, and
causeway, seen from the top of the surviving broch wall.

Stratigraphically the context of the blockhouse is not securely related to any other major element of the site. While it could well be later than the date proposed by Hamilton, to the extent of supporting MacKie's second pre-broch fort hypothesis, there is no good reason to restrict the date of construction other than the late wheelhouse period hut overlying the associated paved area. The stonework of the "ringwork" did not at any excavated point overlie the blockhouse paving, merely collapsed ringwork material showing in section.

5) The evidence for drastic flooding at this period is not conclusive. There is no clear stratigraphic proof that the flooding occurred at this stage rather than much later, perhaps during the latter part of the wheelhouse phase (see below). Attention is drawn to Section GG, where it will be seen that the ringwall repair lies too high in the wall for it to have been occasioned by flooding of the scale envisaged by Hamilton and further, the outer collapse from the wall overlies the refuse layers from the pre-broch phases and a storm gravel containing broch-period pottery (both pottery dates as used by Hamilton). Thus the collapse of the ringwall probably did not occur at this stage.

The "make-up" of the interior is supposed to have been spread over the area to raise it above the height of future flooding. It is suggested that the missing floor-levels from the supposed eastern range were used to build the landing-stage. These floor levels would have been under water at the time following the flooding episode. Such levelling of the interior as did occur can be seen as a preparation for the broch apron, or ringwork without the need for flooding. The interior make-up does not seal the floor-levels of the ranges on any excavated sections.

6) /

6) The ringwork is not certainly post-blockhouse, but is clearly pre-broch. Its relationship to the rubble make-up of the interior is not certain. Against the suggestion that it represents an uncompleted inner ringwork it must be observed that other brochs have such aprons, notably Burra Ness, in Yell. More significantly, the quantity of stone used in the construction of this feature would have been more efficiently used in increasing the general level within the ringwall. As rebuilt in the conservation, this apron/ringwork is much wider and more extensive than section DD' of the report suggests, although the stratigraphy here has been disturbed by later insertion of a hut.

Further, in sections BB' and CC', which both penetrate deeply enough, the "stoney make-up" is replaced by "builders rubble". It is in these sections that the relationship of the rubble to the broch is clear. It might be suggested that all of the rubble layer is in fact the same, and related to a single levelling of the site contemporary with the commencement of work on the broch.

7) The ringwork could only have been "abandoned half built" if it was intended to be a completely circular structure (see above). The "temporary huts", ascribed by Hamilton to the immediate pre-broch phase, are marked by scatters of ash with neck-band pottery and fragments of worked bronze (see chapter iv, below). These temporary hearths are shown on section GG'.

Attention is drawn to the wheelhouse-period wall which bounds the sunken roadway. Rubble is depicted in section GG' as sloping down from this wall onto hearth 2 of these temporary huts, with nothing intervening between the rubble and the spread of ash. Therefore the hearth, and presumably the hut, must have been open at the time this wall was built. If the wall is wheelhouse-period, then the hut must have been in use immediately prior to that time.

This/

This movement of the huts from pre-broch to pre-wheelhouse (in the broch/wheelhouse rebuild phase) would account for the late date of the metal bracelet fragment (see chapter iv). In fact, the only evidence produced by Hamilton for a pre-broch date is the neck-band pottery (type C) which was assumed to belong to the broch-builders on the grounds of a single unstratified sherd from Jarslhof (see that site, above).

The broch was certainly built before the wheelhouse phase and after the farmstead. The exact sequence between these two fixed points is not established conclusively by the report, as demonstrated above. The evidence of sections BB' and CC' would suggest that the broch may marginally pre-date the rubble spread of the interior. The spur wall has been discussed above (item 3). 8) The broch must have been abandoned at the time when the wheelhouse casing wall was inserted. There is no place on the site which would have provided accommodation for the inhabitants during this reconstruction unless they occupied the small circular structure opposite the broch entrance, which lacked hearth deposits and was interpreted by Hamilton as a byre. The re-dating of the temporary huts proposed in 7) above, would resolve this problem.

The wall bounding the roadway to the broch entrance is at least as early as the temporary hearths behind it, unless its foundations were dug very deeply (there was no sign of a large construction trench) (see section GG'). The wheelhouse once in use, there is a substantial increase in the quantity of midden material dumped inside the ringwall, rather than on the beach outside.

9) The existence of late huts of sub-circular form dug into the accumulating midden is clear. The midden itself seems to have accumulated most rapidly in the western arc of the interior, as would be quite compatible with the dumping of material as close to the broch entrance as possible.

In general, the site stratigraphy lacks any clearly demonstrable ties among the major elements of the upstanding remains. In particular the broch is nowhere clearly related to the outer ringwall/

ringwall in a single section, nor is the inter-relationship of the "ringwork" and the blockhouse clear. But the single crucial area of stratigraphic ambiguity is in the date to be assigned to the hearths of the temporary huts west of the broch.

The rubble spread need not be dated to a flooding episode for two clear reasons. Firstly it nowhere seals the range-floors, which were supposed to have been flooded and abandoned thereafter, and secondly it is not evenly distributed.

Clickhimin: a Reinterpretation

Having dealt destructively with Hamilton's conclusions, difficult as these are to disentangle from hypotheses and parallels presented in an integrated format, it is essential that the fragments be reassembled in a more convincing form, which explains all of the factual observations economically. Empty criticism is useless.

The phases which seem most economical of evidence and imagination are as follows:

- a) Early Iron Age domestic settlement
- b) Construction of ringwall and apron ready for broch
- c) Construction of broch followed by (?) blockhouse
- d) Temporary abandonment of broch for conversion
- e) Building of roadway, wheelhouse occupation
- f) "Squatting" in less substantial structures, perhaps with the wheelhouse still in use.

The crucial "flooding" episode probably did not recur until after the broch was either under construction, or in use; probably the latter.

In detail:

- a) The evidence for rejecting a Bronze Age in favour of an Iron Age date has already been discussed. The rubble and floor spread from below the broch are interpreted as implying a second structure essentially similar to the surviving example of oval transepted house.

The pottery associated with this phase is of types A and B, with frequent carinated profiles and footed bases. The general forms are ubiquitous to the Early Iron Age of Northern Britain and compare closely with those of MacKie's "Vaul ware" (MacKie 1974), although this is more probably indicative of common rather than lineal descent. There is no evidence that there are two distinct pottery phases associated with the pre-fort period, and this view is replaced by that of a single, varied assemblage comprising coarse and fine types of pottery.

- b) /

b) Following an influx of outsiders, marked by everted fluted rim pottery, the islet is surrounded by a ringwall to form a defended enclosure. At the same time, the apron for the broch is prepared, the foundation courses are laid (with a change in plan which results in a slight reduction of the intended outer diameter, and rejected building stone, rubble from the demolished Early Iron Age house and mason's chippings are used to build-up the floor of the rather damp enclosure, accounting both for the "make-up" of the west and the "builder's" rubble of the east. The surviving Early Iron Age house provides some shelter while the ranges are built against the western interior face of the fort (this explains why the post-packing of the ranges consistently protrudes through the rubble layer which, according to Hamilton, post-dates the range post-holes). Rather less substantial wooden structures are also erected in the eastern part of the area.

The reason for the apron below the broch is made clear by the underlying topography of the bedrock. The apron is present on precisely that part of the broch circuit which does not overlie shallow bedrock, and served to provide stability, it being recognised early in the building that slippage of the gravel layers might pose a major constructional problem.

The "landing stage" may date to this phase, and represents the edge of a deliberately deepened, approach-blocking, ditch.

c) The broch is erected on the prepared apron. The range continues in use for storage space, and as a byre. Some of the range may have been "cannibalised" to provide wood for the broch's internal fittings. A shortage of space, and perceived weaknesses in the defences, promote the building of the blockhouse. This hollow block of masonry is in effect a "dummy" section of broch wall, and serves three purposes.

- 1) It provides a false broch-entrance to confuse attackers.
- 2) It provides extra accommodation, in a range rather lower than that envisaged by Hamilton, and storage space in the cells, which are, however, primarily a structural economy.

3) /

3) It gives additional cover to the entrance of the ringwall, which has no guard cells, without running the risk of dismantling the entrance to insert these. The top of the blockhouse may have been linked by a descending, wooden stair to the wallhead of the broch (this is purely conjectural).

In addition, the blockhouse would have provided an impressive false-facade to anyone entering legitimately, a valid consideration if prestige can be considered as one of the broch-building motives.

To erect the blockhouse range, the apron is modified by the removal of a segment. The instability thus caused results in the later collapse of stone over the range paving (section DD').

There is no major new immigration between phases b) and c).

d) The threat perceived by the broch-builders comes to an end. Some of the broch-dwellers leave permanently, while newcomers bring the idea of the wheelhouse and a new and distinctive pottery (C) which is based upon the same ancestor as the older (B/C) flute rim ware, but more highly decorated. The broch is temporarily abandoned and the ranges inside removed. The ranges inside the fort wall also finally fall into disuse. The rebuilders erect temporary huts while the massive crescentic casing wall is inserted into the broch, possibly partly to combat incipient inward collapse.

The material for this wall comes from the inside face of the fort ringwall, which is robbed and then shoddily refaced, in case of an attack (now deemed unlikely). This explains why the ringwall alterations are greatest on the inside, which could not have been the case after a flooding, since the wall would have slumped outwards, if at all, and the actual damage (section GG') is too high to be attributed to wave-action, even outside the fort.

e) The wheelhouse ready, the temporary huts are abandoned and midden material, formerly dumped over the ringwall into the loch, now begins to accumulate around the broch entrance held back by a new retaining wall. This can be done because the site now houses far fewer people, perhaps only the same number as in phase a).

Again/

Again, the population rises, slowly this time. The circular "byre" is dug into the midden at the end of the retaining wall. On the now disused range site, behind the blockhouse, another hut is inserted into the unstable, and already partially collapsed, apron. A third is dug into the back of the retaining wall and a fourth inserted high in the midden deposits behind the ringwall.

By this stage in the sequence, the chronological period is the Dark Ages, and at some time in this phase, as the marshy area separating the broch site from the shore is no longer needed as a defence, the causeway is built.

This new sequence is set out in Diagram 1, iii, 7. Diagram 1, iii, 6, preceding this, is a summary of Hamilton's sequence. The periods are numbered thus, on the plans:

1, iii, 6 Hamilton

- | | |
|---|---------------------------|
| 1 | Bronze Age farmstead |
| 2 | Early Iron Age |
| 3 | Fort |
| 4 | Fort rebuild and ringwork |
| 5 | Broch |
| 6 | Wheelhouse |
| 7 | Late wheelhouse huts |

1, iii, 7 Proposed

- | | |
|---|----------------------|
| 1 | Early Iron Age |
| 2 | Fort and broch apron |
| 3 | Broch and wheelhouse |
| 4 | Wheelhouse |
| 5 | Retaining wall |
| 6 | Late huts |

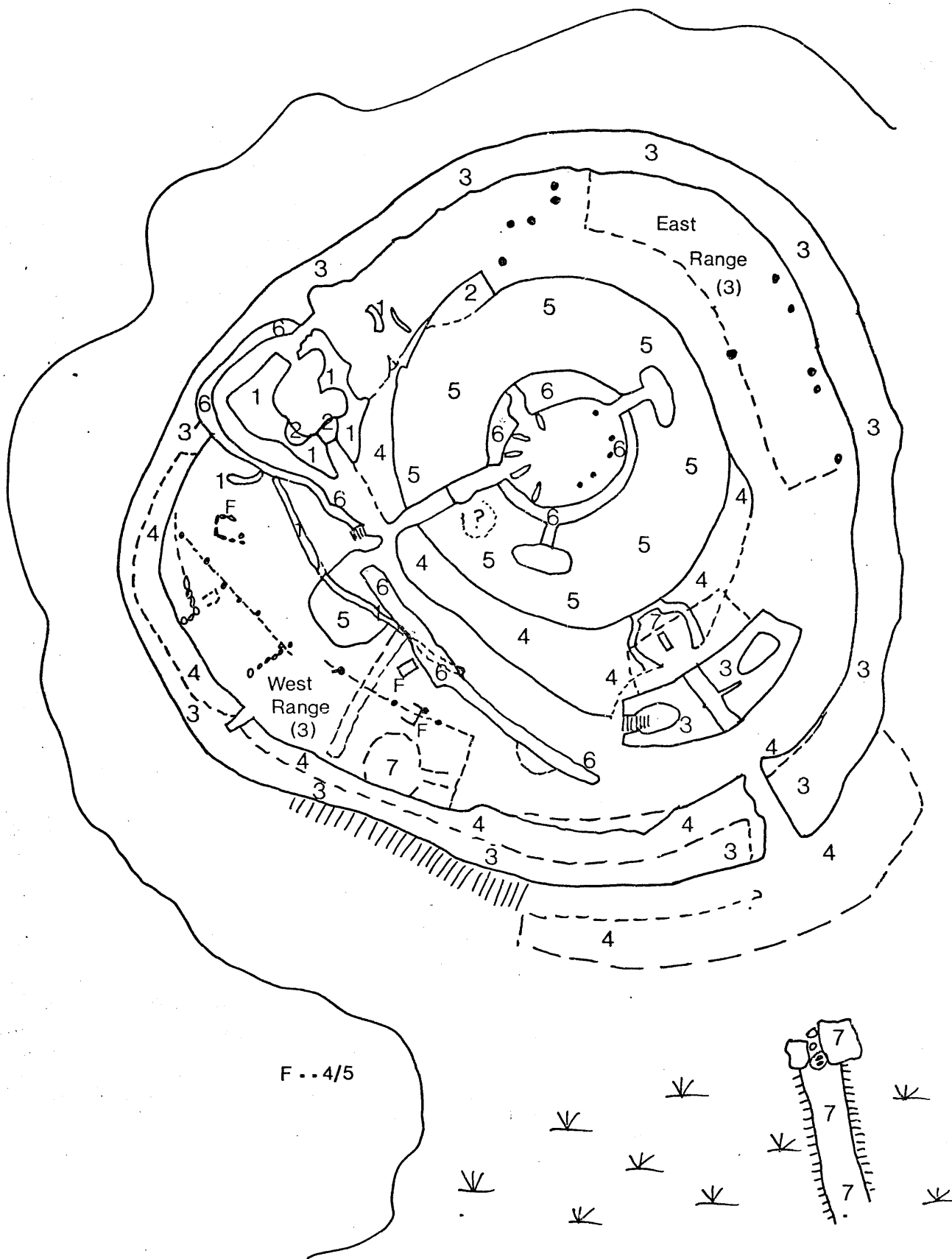
The sequence proposed can adequately explain all of the sections and the material evidence of the excavation report. It does so more economically in terms of phases and pre-supposes fewer unsubstantiated events. In particular the number of immigrations can be reduced.

The/

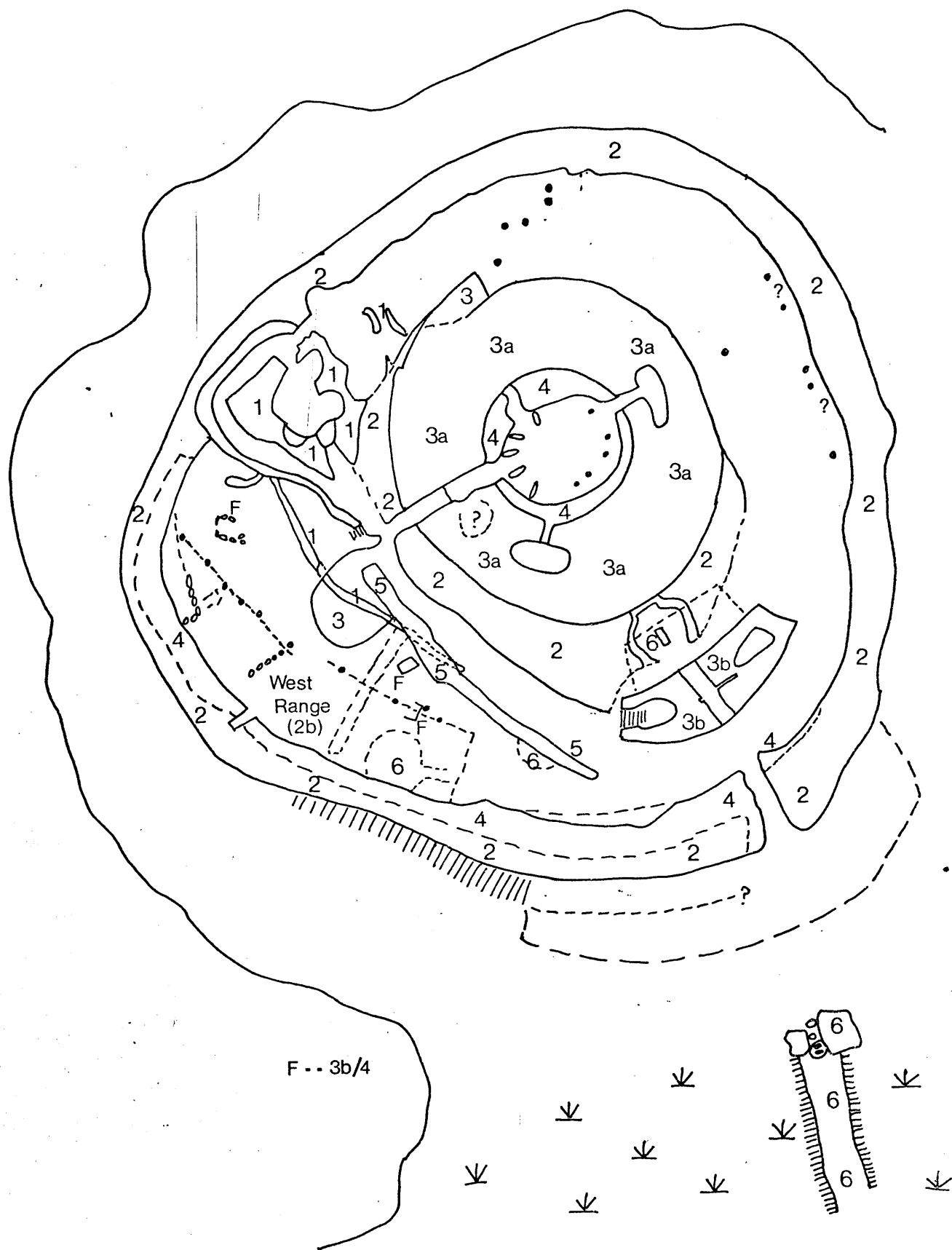
The re-interpretation is quite capable of checking by relatively restricted excavation in certain key areas. These are:

- 1) Between the western end of the blockhouse and the broch.
(Checks blockhouse-apron relationships).
- 2) On section GG', to reach full depth at all points marked "unexcavated". (Checks relative dates of ringwall and wheelhouse-period wall, and of latter and temporary hearths).
- 3) On BB', similarly to reach full depth. (Checks broch-ringwall relationships).

It is to be hoped that this checking will be made possible at some future date.



HAMILTON, 1968 - PHASES



PROPOSED PHASES

Dun Mor Vaul (MacKie, 1974)

This Tíree broch was excavated in 1962, '63 and '64. The site was effectively undisturbed, and the report remains the only publication of a totally excavated site which had not been disturbed by earlier antiquarian activity. The report is itself an exercise in presentation, with the praiseworthy aim of publishing the site as excavated, followed by the conclusions, rather than mingling the interpretation and evidence, as was done in the last two cases.

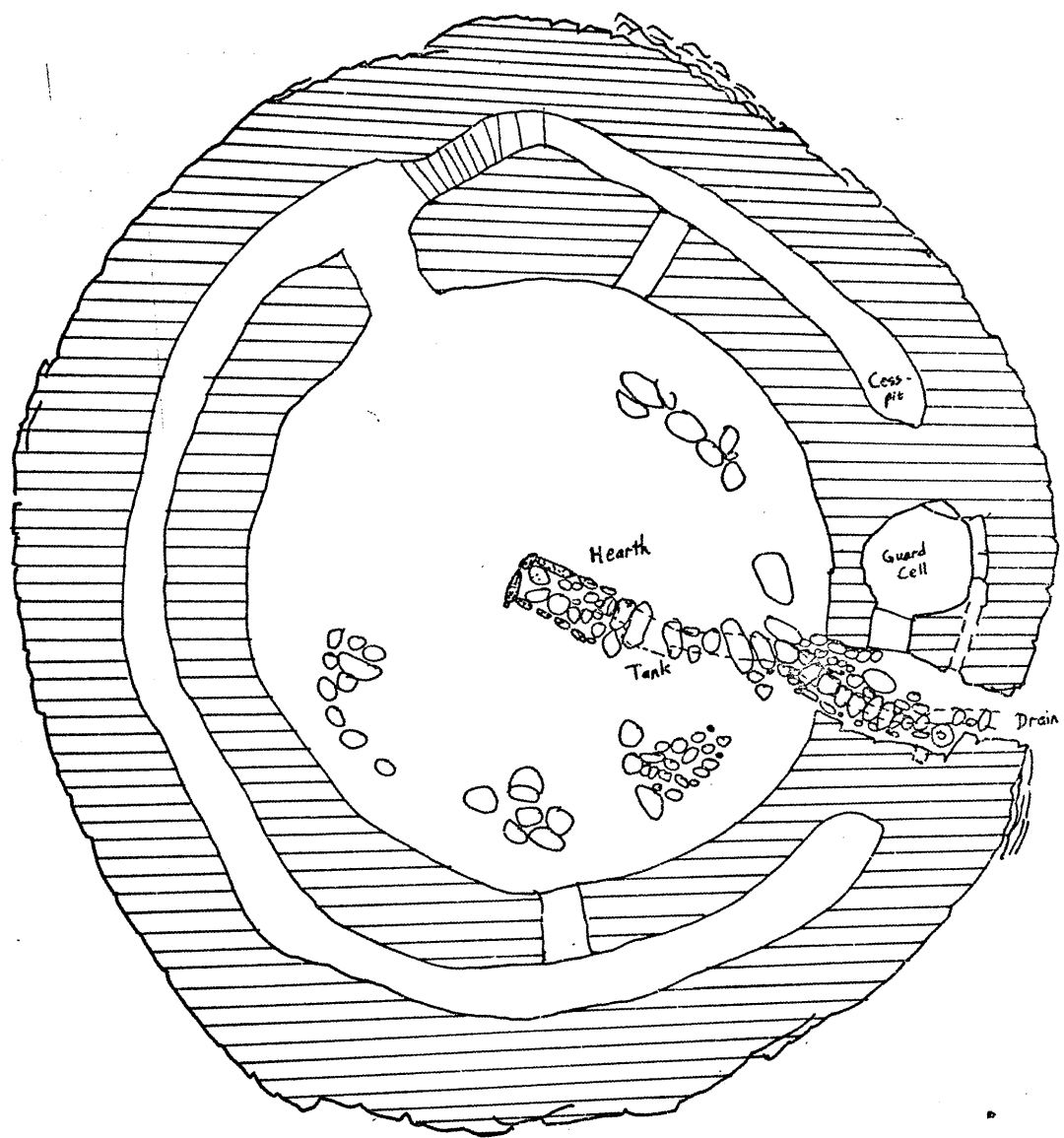
Diagram 1, iii, 8 gives the site plan at the broch phase.

The data is presented by excavation contexts, and only then is the occupation sequence described, relatively briefly. Then follow more detailed discussions justifying the chosen chronology and setting the broch in its wider context and discussing the significance of the excavation. The report is remarkable for two new departures. It is the only major broch report to have been published since the development of meaningful radiocarbon-dating, and it is the first report to attempt to illustrate every distinctive find. The illustration of 494 out of 4139 sherds discovered gives some idea of the undistinguished nature of broch pottery, even in the west, where decoration is more frequent. (Quite how much totally featureless pottery came from Clickhimin will probably never be accurately determined, but it was at least as much as from Vaul.)

The sequence defined by the excavator is as follows:

- 1A: Hut, and midden deposits, detected in area of broch courtyard, below the level of the broch. There is no evidence for iron (use or manufacture). The pottery is of a widespread local type, lacking clear outside influences. Bronze is evidenced both by finds of ring-headed pins and spiral finger rings, and by impressions of the former on sherds.

1B /



DUN MOR VAUL

1B: Essentially, similar occupation is distinguished by new pottery, a red-slipped carinated ware resembling common English Iron Age A forms (and Class A from Shetland). Iron may be introduced (bone is found, cut with very sharp implements. Some very coarse pottery, rather like Dunagoil ware, is found, but most is of the fine, hard-fired, plain or incision-decorated "Vaul ware", which is generally of "vase" form and slightly footed. A single cordoned sherd reminiscent of Yorkshire Iron Age A style is ascribed to this phase, as are a few sherds of everted fluted rim pottery.

A grain sample gave a date of 445 ± 90 b.c.

2A: On the arrival of fort-builders the site is surrounded by a wall and prepared for the broch by levelling-up, which results in churned deposits incorporating earlier midden material, plus everted rim ware decorated with impressed cordons and channelled arches. A rotary quern found below the broch floor may belong to this phase; "Though it was found close to the grain sample carbon-dated to the late sixth or fifth centuries BC it cannot be anywhere near as old as that. (Curwen, 1937)." Sherds of primitive-looking Clettraval ware are found, severely burnt, and argue for the destruction by fire of a wooden structure.

"Such an earlier phase is theoretically necessary if one is to assume that the arrival of new cultural influences produced both the development of the Clettraval pottery style and the brochs themselves - both well developed and firmly local artefacts", p.79 of report.

2B: The broch is built, and everted rim ware develops into "Clettraval ware in its classic form", "a completely new style." The distinction in fabric between the everted rim pottery and the Vaul ware is maintained, and a physical separation of sherds of these two types in the chamber in the mural gallery of the broch is held to support the idea of immigrant professional architects working for, and supplied /

supplied with food by, the local inhabitants. This interpretation is further supported by reference to the bone refuse, which is concentrated in the mural gallery and is characterised by a marked increase in the proportion of domestic species, chiefly sheep, suggesting a specialised and high-status diet (see also MacKie, 1976).

- 3A: The broch serves its primary function, as a temporary refuge for a large number of persons. The central court is largely unpaved, and holds a tank with an overflow drain. There is a thick accumulation of ash and refuse, with pottery fragments, but no built hearths are located, although burnt patches are present. A cess-pit is used, at the end of the mural gallery. The arguments for the function of the broch as a refuge are:
- a) It was later "converted" into a farmhouse, so could not have been one at this stage.
 - b) No permanent hearths were found among plenty of occupation debris.
 - c) The cess-pit, and the large quantities of debris imply a large number of occupants under a strictly hygienic regime.
 - d) The raised wooden floor would accommodate many people.
 - e) The water-tank implies a desire to safeguard a water-supply if besieged.
 - f) The small capacity of the tank implies that many people could only have used the broch for a short period of time, during a brief attack.

The excavator concedes the lack of evidence for the residences of the people while they were not ensconced in the broch.

3

A/B: Large, shattered vessels (including fragments of a globular bowl of bead-rimmed "Wessex" affinities) lie on the ground, covered by ash. These are not complete so could not have been destroyed in situ by burning of the broch. They probably represent the last vessels of phase 3 to be broken, and were preserved before trampling had spread the fragments very far apart

3B: A rectangular paved hearth is inserted, and a thin spread of ash with few artefacts covers the now empty postholes of the raised wooden floor, which was presumably removed at the end of 3A. The broch tower remains substantially unaltered otherwise, and may still have been roofed by the original chord-wise supported structure.

4A: The broch is unroofed and systematically dismantled, the stone being largely removed from the site. A stone facing is added around the inner face and the court is then re-roofed, the mural gallery, minus its lintels, is left open and fills with wind-blown, sandy earth. The new structure functions, like the last, as a farmstead. The pottery of this phase is slightly more developed in decoration than that of the preceding phase, and is still clearly in the Clettraval tradition.

4B: Rebuilding yet again, as a wheelhouse-type structure, which is abandoned before Clettraval has had time to "degenerate" to the styles of Dun Cuier ware.

5: Sporadic occupation is characterised by a few sherds of late Clettraval ware.

The independent dating evidence for the phases presented above is:

- 1A Radiocarbon dates: 400 \pm 110 b.c. (roots in old surface)
445 \pm 90 b.c. (charred grain)
- 1B Radiocarbon date : 280 \pm 100 b.c. (bones, upper midden).
Red-slipped carinated sherd "probably belongs to this period".
- 2A None
- 2B Radiocarbon dates: 1195 \pm 90 b.c. (charcoal below gallery floor)
60 \pm 90 a.d. (charcoal on gallery floor)
- 3A Roman glass fragment, vessel of type manufactured in Cologne from 160 to 250 A.D.
- 3B /

5: (contd).

3B Roman glass and pottery fragments, of Antonine date.

4A Roman pottery fragment of type dating after 160 A.D.

4B None

5 Radiocarbon date: 160 \pm 90 a.d. (charcoal in gallery fill).

The sequence of archaeological layers at Vaul is incontestable, and apart from a few areas, all of the contexts excavated can be securely related to this site sequence. However, certain of the chronological and cultural interpretations are open to some measure of doubt.

As regards radiocarbon dates, it is standard practice to accept "suitable" dates and to reject those that do not fit the expectations of hypothesis. Certainly the 1195 b.c. date sounds much too early, but it is equally likely that the "acceptable" 60 a.d. date may be wrong archaeologically. The problem here is a general one: that radiocarbon dates are by definition unverifiable, as they are only used in situations where independent dating checks are not available. This is a shortcoming of the technique rather than the user.

The important red-slipped carinated sherd is unfortunately only probably of phase 1B, being associated with other pottery in a mixed layer. This insecure association is used to support the early date ascribed to the other pottery of this context.

Phase 2A, the critical phase in the cultural interpretation advanced by the excavator, is wholly hypothetical, but is required to explain new features of the artefactual assemblage noted after phase 1B. Chief of these is the style of everted rim pottery, often decorated with channelled "eyebrow" arches and impressed waist cordons, termed "Clettraval" ware. Although some of this style of pottery is recorded from the site in phase 1B, this seems to be due to accidental mixing of layers in 1962 (MacKie, pers. comms.) The only evidence for phase 2A structures is a hypothetical wooden structure whose destruction by fire resulted in the severe burning of some of the earliest-stratified sherds of Clettraval ware. The source of the decorative motives of Clettraval ware has been sought by/

by MacKie in the Wessex styles of the last centuries B.C., and on this association, and using the earlier interpretation of the 60 ± 90 a.d. radiocarbon date, phase 2B is assigned to the first century B.C. If either a) the pottery style did not derive thus or b) it derived thus, but took longer to arrive, this date for phase 2B could be later - at the most, however, only a century and a half later. On the excavator's argument the new Clettraval style represents the favoured pottery of an intrusive, dominant, class derived ultimately from S.W. England. This is discussed further below.

A re-examination of the evidence in phase 3A for the sporadic use of the broch as a refuge is in order. There were raised wooden galleries. Cooking on such galleries would have been simple, given clay hearths. Thus the lack of hearths need not signify the lack of a permanent population. Indeed, the existence of a cess-pit, indicating a concern for hygiene, could be used as an argument for permanent, high population, occupation. Non noxious waste (ash, broken bones, pottery) would have been raked onto the ground level, while noxious waste, that portion which normally causes the dense, dark appearance in occupation deposits, was disposed of via the cess-pit. This would have left the ground floor free for storage, and would have kept the water-tank relatively free from pollution. Indeed the extreme care taken to ensure sanitary conditions might equally be used to argue for, rather than against permanent occupation.

The argument that, because the broch was converted into a farmhouse in phase 3B it could not also have been one in phase 3A is clearly specious. The differences between the residential requirements of a large and a small agricultural group would have been very great indeed, if both were constrained to occupy the same space. The real difference between these two phases may have been the number and not the nature, of the occupants.

All of the Roman artefacts would be appropriate to a late 2nd or early 3rd century A.D. date, and can be paralleled at most broch sites with evidence for occupation after the phase associated with construction.

The primary function of the broch has been discussed. The other major point of difference is over the interpretation of the bone material recovered. There is an increase in bone from domesticated species associated with the building of the broch. The excavator has suggested that this is to be ascribed to the "high-protein" diet supplied to, or acquired by, the "specialist broch architects." The simpler explanation must surely be that the figures represent the use of domesticated herds as a food source in preference to hunting so that the broch could be constructed in a shorter space of time by eliminating the need for hunting parties. There is also a distinct possibility that the diet of mutton and beef, while nutritious, would not have been of as high a status as one of venison and other game, in social terms. Excellent parallels for this can be found in the earliest Irish traditions (Jackson, 1964).

The idea of a high-status group is supported by the evidence of spatial separation of Clettraval and Vaul wares on the floor of the intra-mural living space. This could be explained by the use of these styles for different purposes (food storage versus food preparation, for example). The suggestion of the excavator that the Clettraval, being the local "high-status" pottery was therefore given to the broch-builders is unacceptable on logical grounds, since it has not been demonstrated that Clettraval ware was, in fact, more highly regarded than Vaul ware, even if it was "newer". The argument that it must have been high-status because it was given to the architects is simply circular and can be rejected immediately.

Thus while Dun Mor Vaul presents strong evidence for the arrival of new people bringing new styles of pottery, there is simply not enough known about the pottery of the rest of Western Scotland to place these immigrants firmly in terms of exact chronology or immediate origin. The lack of a matching assemblage /

assemblage to the pottery of Wessex at this period prohibits a direct influx.

Since the immigrants of phase 2A arrive just before the broch is built, it seems more economical to suppose that they brought the knowledge of defensive fortification with them. The general lack of uniformity in dimensions and detail exhibited by western brochs, even more than by northern brochs, would not support a "specialist architect" theory. It seems fundamentally unlikely that a group of Iron Age inhabitants, with a proven propensity to group movement and links by marriage and descent to a series of immigrants from the south and with sporadic contacts with their neighbours, would not have learned of the idea of a broch, and have been able to build one if necessary.

It is contended that Dr. MacKie has seriously underestimated the capabilities of local masons, and exaggerated the skills required to comprehend and then reproduce the concept of a broch.

In the opinion of the present writer, the Dun Mor Vaul sequence could be summarised thus:

Undefended settlement

Arrival of new elements, with

Clettraval style evolving.

Broch built by whole group, as rapidly as possible,
and inhabited by whole group under strict discipline.

Threat perceived to have decreased.

Most of people move out of broch,
leaving the shell to one family, and
removing timber.

Hearth and floor-level occupation (short-lived)

Instability develops in upper levels.

Broch reduced, stone removed from site, farmhouse rebuilt
and re-occupied.

Temporary desertion.

House rebuilt in (?) wheelhouse style.

Final abandonment

Sporadic "squatting".

This/

This interpretation does not deny the possibility of social stratification, either in terms of power or skill, but suggests that the evidence at Dun Mor Vaul is not sufficient to support such a differentiation, which is taken by the excavator as a basic postulate.

Architectural Analysis

In addition to the three major sites discussed above, there is another body of information which requires consideration at this stage, as it forms the basis of one of the two theories concerning the origin of brochs.

MacKie (1965, 1971, 1973) has drawn attention to the fact first formulated explicitly by Graham (1947) that the architectural details of brochs vary from one geographical region to another, and has used this as the basis for an evolutionary typology of structures.

It must be observed at an early stage that such analyses can only discuss the better-preserved brochs, and these may, in fact, represent the brochs which were better built originally. That is, if there did exist a situation similar to that envisaged by MacKie (1974) with professional architects, the surviving brochs may represent the work of these craftsmen, while the countless heaps of rubble identified as "broch: site of" may conceal the copies built without expert advice. In fact, field work in Shetland (chapter vii) has tended to suggest that the pattern of preservation is biased in several ways by later human activities.

This aside, the idea of the establishment of an architectural typology is not a new one, and the remarks of the Royal Commission (RCAHMS, 1928) have been quoted in the preceding chapter. MacKie's development of Graham's seminal work has sought to establish a plausible sequence of innovation within the structures grouped under the name of "broch". A large number of building traits were analysed on the basis of frequency of occurrence in each of a number of regions and a significant pattern was isolated.

Brochs with ground-level galleries, ledge-type scarcements at low level, door-checks set near to the outer end of the entrance passage and relatively flimsy wall construction are more frequent in the Hebrides. Such structures tend to make use/

use of naturally defensive situations. Brochs with solid bases, deep-set doors and high scarcements are more typical of the northern mainland and Shetland, where they often occur in situations which are not naturally advantageous for defensive purposes. Orkney has a wide range of broch-types, with both "western" and "northern" types. The most massively constructed brochs of all occur in Shetland, Caithness and the Midland Belt.

These demonstrable facts were used as the basis for the suggestion that the earliest brochs were those of the west which could not have been built to great heights, were dependent upon natural eminences and lacked full development of the deep-set door which is so difficult to attack. After invention in the west, the brochs (with or without actual large-scale population movements) were taken to Orkney, where the superb local stone prompted experimentation, with the solid-based form proving more suitable for achieving height. These more massive brochs were capable of standing in the open, without need of natural defences. From here the new, solid-based, form spread to north and south, with further refinement leading ultimately to the high tower forms of Mousa and the few surviving tall ruins such as Dun Dornadilla.

Extrapolation backwards from the start of this typology promoted the suggestion that the ancestors of the first brochs should be dependent upon natural features, have broch-like entrances and some measure of galleried wall-construction indicating a desire to achieve height. Such conditions are best fulfilled by a small group of structures in Skye and nearby, termed "semi-brochs" by MacKie (1965).

While/

While this typology is certainly plausible - the converse, with the broch inverted "fully formed" and gradually degenerating into duns, has been proposed by Young (1962) but this seems highly unlikely - it lacks any real confirmation in terms of dated sites. This is simply because there are very few broch-building dates known, certainly too few to provide conclusive evidence, especially as the typology does not argue that every broch in each area was built at a specific time, but that most brochs were. After the invention of the broch, MacKie envisages continuous building in all areas, but with most western brochs built before most northern brochs. That is, it is not the period of broch building which varies but the period of maximum constructional activity.

Dun Ardtreck, a Skye semi-broch, has furnished a date sufficiently early to be a convincing ancestor to local brochs, but this in itself cannot prove the validity of the sequence until other putative ancestors such as blockhouses or more normal galleried duns, have supplied a body of dates.

The alternative to this evolutionary typology is the conclusion that the locally prevalent styles arise through adaptation to local conditions and specific requirements. This has been proposed by Hamilton (1968).

The Theories Compared

Having thus reviewed the evidence and conclusions from the three central sites together with the architectural analyses which form the basis for the arguments of Hamilton and MacKie, it now remains to review the contrasted views of broch origins and cultural affinities put forward by the two excavators.

Northern Origin (Hamilton 1956, 1962, 1968)

The introduction to the Clickhimin report includes this section:

"When the pottery associated with the Jarlshof broch builders was analysed, it was found to consist of two distinct classes. The first was relatively fine and well fired. An everted rim fragment showed that the cooking pots making up this assemblage were sometimes ornamented round the neck by the application of a band of finger-pinched clay. Similar wares occur in the Orcadian brochs and suggested that broch men from Orkney were among the immigrants at Jarlshof. The second class of ware, by far the more numerous, appeared to be native to Shetland. It was coarsely built on the ring principle and contained quantities of steatitic grit as a backing in the clay. Steatite or soapstone does not occur naturally in Orkney, but outcrops extensively in Central and Northern Shetland. On this evidence it was suggested that the initial colonisation of Shetland by broch men from Orkney or the North of Scotland took place in the central or northern regions of the island, where native labour was recruited and extensively employed in the building of the chain of brochs extending down the peninsula, and ending at Jarlshof."

Hamilton, 1968, p.4.

This/

This neatly summarises the state of Hamilton's opinions concerning the social system behind broch building in Shetland, at the time when he began excavating at Clickhimin to find the all-important "missing" first phase of settlement by broch-builders. The flaws in the above are obvious. Firstly, the single sherd of neck-band ware was unstratified, and the other matching fabrics belong to post-broch, not broch, pottery. Secondly, the argument that such ware came from Orkney, since there is more from Orkney sites is specious: more sites have been excavated in Orkney. To take the converse, neck-band ware has been absent from a larger proportion of Orkney brochs than of Shetland brochs. Thirdly, steatite has always been used in Shetland pottery, and Neolithic steatitic wares are found much further from steatite sources than the 18 kilometres to Cunningsburgh or the 8 kilometres to the source, un-noted by Hamilton, at Spiggie. It was probably the steatite, not the pottery, which was moved, simply because it provided by far the best backing, at least for coarse wares, available in Shetland.

The thesis of "broch lords" was pursued throughout the text of the report on Clickhimin with extensive quotation from, and drawing of parallels to, later Irish epic literature. This actually accounted for some of the major details of reconstruction, particularly the blockhouse range.

Summarising the report, Hamilton say:

"A close study of the principal structures showed that the type of fort represented was the direct precursor of the brochs. A combination of defensive and domestic factors had given rise to hollow wall construction and other devices which form an integral and essential part of the later broch architecture.... This evolution did not take place in Shetland. At Clickhimin the fort was superseded by a broch. As at Jarlshof the pottery associated with the builders contained a class of ware that could be derived from Orkney and it was probably in this island group that the towers were first perfected." Hamilton, 1968, p.7.

The/

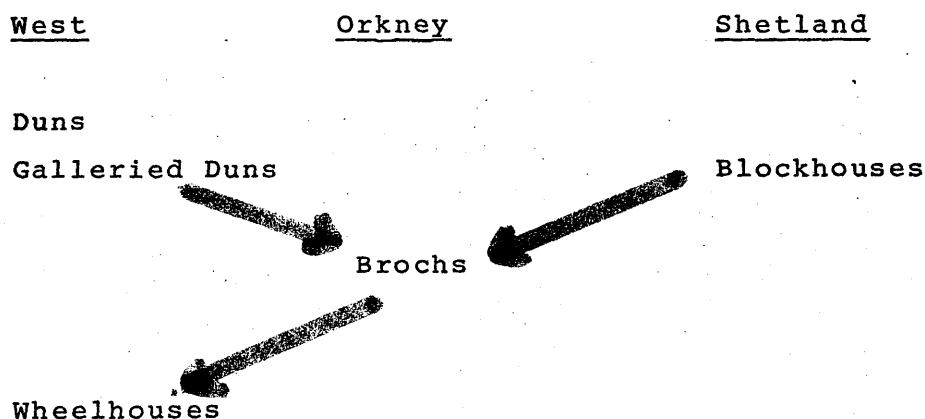
The consequence of the insistence upon neck-band ware being "broch-builders'" pottery has already been discussed and accounts for the complexity of the published sequence for Clickhimin. It is nowhere acknowledged that everted fluted and non-fluted rim ware consistently occurred before (i.e. below) neck-band ware at this site. The neck-band is in fact a later decorative motif which is usually associated with incised decoration and may, indeed, be an Orcadian invention. Some of the earlier (undecorated, save for fluting) everted rim sherds are gritted with steatite. Clickhimin is 14 kilometres from the nearest source, so cannot be the earliest site of the "broch-lords", on the Jarlshof arguments. More seriously, the presence of the everted rim style in steatitic fabric implies that it had been known in the islands long enough to be in local production.

In other words, there were two distinctive pottery styles at Clickhimin before the broch, and the neck-band ware simply signifies the arrival of new decorative ideas, and probably (see site re-interpretation) dates to the immediate post-broch period. These ideas were added to a well-known style adopted many years before by the inhabitants of the site.

Looking once more at the map in which broch origins are traced (Hamilton, 1968, p.46), the occurrence of fluted-rim wares in the West is seen to be emphasised. The examples here all seem to be from wheelhouse sites, not brochs, although the map is schematic rather than accurate. More importantly, Hamilton's argument that the Urnfield ancestry of the everted fluted rim style could be used to imply a date as early as fourth century B.C. for the fort at Clickhimin is open to doubt. Although the style certainly appears in a Late Bronze Age context in Northern France (Sandars, 1957), significant stylistic elements in fact continue in that area until the first century B.C. (Wheeler and Richardson, 1957). These elements include everted fluted rims and decorated cases.

More/

More generally, Hamilton was firmly of the view that brochs were most likely to have originated in their zone of maximum concentration (Orkney or Caithness). Although advocating the Shetland blockhouse forts as "direct" pre-cursors, an Orcadian origin was somewhat illogically advanced, although there are no proven blockhouse forts in that region. The lack of galleried duns in the North is carefully circumvented by the statement that brochs are "perfected" in Orkney, whatever this may be taken to mean. The Hamilton, or Northern, sequence could be summarised:



Western Origins (MacKie, 1965, 1971 a & b, 1973, etc.)

Dr. MacKie is the most recent of archaeologists to argue for the origin of the brochs, and their associated cultural traits, in the Western Isles.

Structurally, MacKie's developmental sequence is the same in essential detail as Hamilton's, the single point of difference being the substitution of the D-shaped galleried dun of "semi-broch" type for the blockhouse as direct progenitor of the brochs. Logically, this is a much sounder proposition, as it simplifies the sequence, thus:

West /

WestOrkneyShetland

Duns

Galleried duns

(Semi-brochs)

Brochs (initiation)

Blockhouses

Brochs (development)

Brochs (final forms)

Wheelhouses

The insistence on the role of the semi-broch seems a little over-accentuated: would a broch really evolve from roughly circular duns via a D-shaped intermediate? Quite possibly the semi-brochs, like the blockhouses, represent early experiments in dry-stone hollow-wall construction, but need not be in the main sequence of development. In the absence of date from any sizeable number of "mainstream" duns, judgement should be suspended. Certainly the dates from Dun Ardtreck are appropriately early, but the paucity of similar duns may suggest an evolutionary dead-end. Quite why a new immigration (MacKie, 1971) should be necessary to introduce the idea of circularity to the broch province is difficult to comprehend.

MacKie (1973) has studied the material culture of the brochs and wheelhouses in great depth, and it cannot be hoped to do justice to this in a short space. Consequently, the summary of developments suggested by MacKie (1971) is presented here, by permission of the author, in its schematic form (Diagram 1, iii, 9).

Attention is drawn to four points:

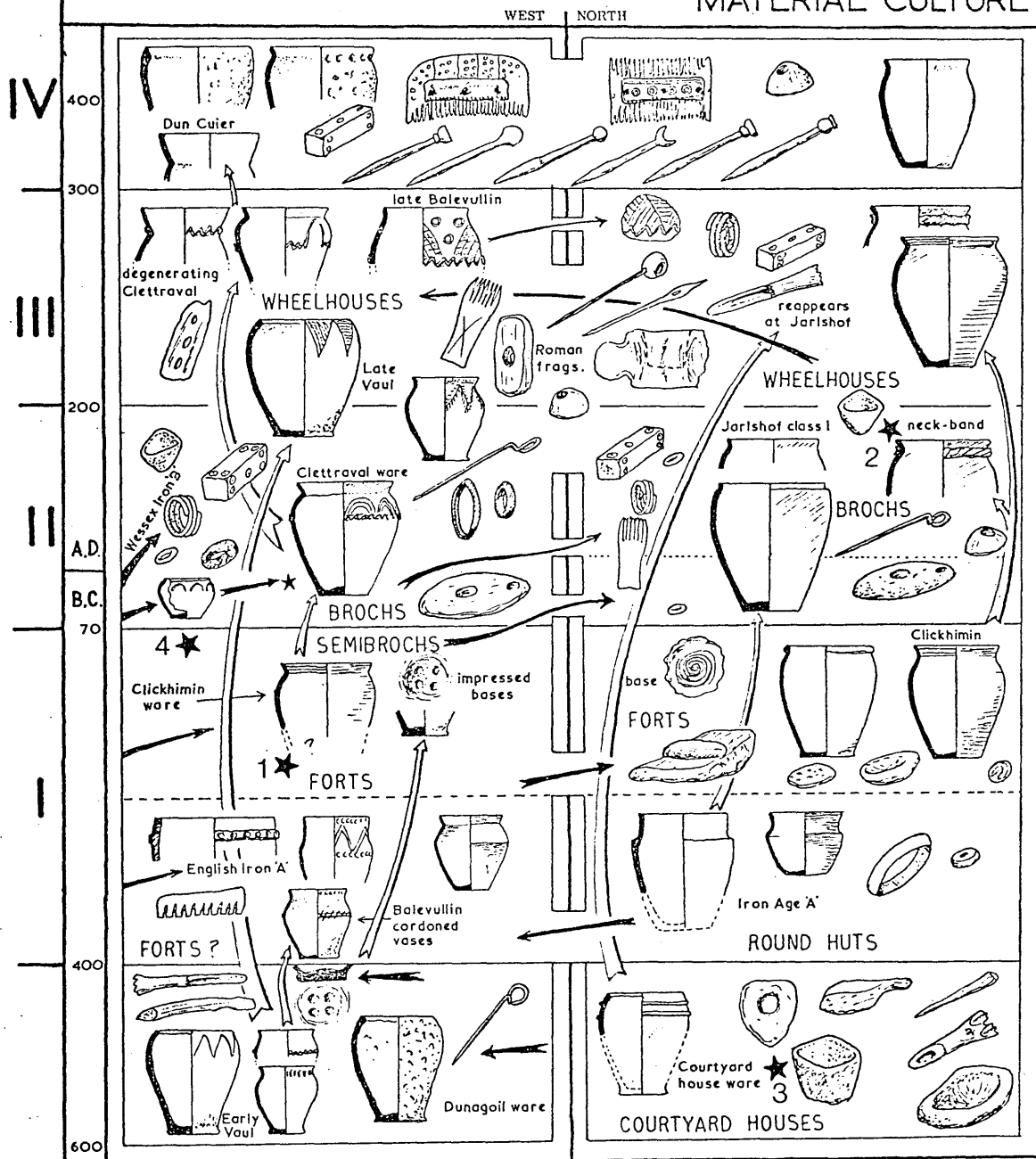
1) There is no evidence for fluted-rim ("Clickhimin") ware at this early date in the West. The earliest in that area is that from the secondary floor ash-spread at Dun Mor Vaul (MacKie, 1974).

2) /

- 2) While complete agreement is felt with MacKie's later placing of the neck-band ware, and the northern origin suggested, it appears the date is in fact inadvertently late.
- 3) A major pottery type of the northern brochs is not mentioned. This is a plain, situlate jar of medium to fine fabric, with a slightly incurved rim, in effect an undecorated northern equivalent to "Vaul ware."
- 4) Little has been said so far about the "Wessex Iron Age B" bead-rimmed bowl at Vaul. The significance of this single item of pottery, with its bead-rim formed by cutting down a presumably everted-rim bowl, is a very moot point. If it really is a souvenir or memento, surely it would be freshly made and not a cut-down version of something which clearly already existed on site? The placing of this at the start of the sequence arched decorated "Clettraval" ware is highly dubious, considering its uncertain stratigraphic affinities.

In summary, the proposed scheme put forward by MacKie seems to be weak only in so far as it insists on the important role of semi-brochs, and in so far as the evidence for the northern situation was less familiar to him than the western. The sequences presented by Hamilton for the north were used by MacKie with relatively minor modification.

ATLANTIC IRON AGE: STAGES OF MATERIAL CULTURE



★ Points discussed in text

Discussion

Structural Sequences

The basic evolution dun-galleried dun-broch does not appear to be in doubt. The main point of divergence in opinion is the intermediate structures between brochs and galleried duns. In fact, both proponents mention blockhouses and semi-brochs. As might be expected, each opts for the structure he knows best. It must be noted that Hamilton's sequence of structures does not, in fact, match his evidence logically, there being no blockhouses in Orkney.

Hamilton does not, in fact, insist upon an Orcadian origin, but an Orcadian "perfection", for the broch, thus leaving open the option of the idea originating elsewhere in a cruder form. MacKie's sequence of development has no such vagueness and while Hamilton seems to see variation in broch details as a regional response to conditions, MacKie incorporates these differences into his scheme, thus:

Ground galleried (West, with a few in the North)

Transitional (North, rare)

Solid-based (North, with a few in West)

Now, if the broch is a response to a specific threat, then that threat must have been foreseen in time to allow the brochs to be invented (unless the threat appeared fortuitously in an area where high wall-building experiments were already in progress for other reasons). Both authors agree that the brochs were built over a very short time span, probably less than a century. If this was, in fact, the case, then it follows that the actual pattern of architectural evolution, once the broch had been invented, must have taken place so rapidly that it cannot be traced by currently available archaeological techniques. Even radio-carbon dating lacks sufficient precision. The only alternative/

alternative is that the threat was perceived in different areas in succession, so that between the short building phase in one area, and the same phase in the next, the new ideas could arise to be incorporated in the next area's brochs. This seems a rather elaborate scheme of stop-go typological development, and unless the time intervals were unreasonably long, would again not be demonstrable.

Similarly, the evolution and spread of the succeeding wheelhouses and aisled roundhouses are equally hard to trace. A northern origin has been advocated (MacKie, 1973) as has a western (Scott, 1948). The artefactual evidence is somewhat equivocal, but seems to point towards the west, while the major problem of the absence of any identifiable wheelhouse of developed form in Orkney is not easy to resolve, especially when there are good possibilities for proto-wheelhouse structures in the area, such as Howmae (Traill, 1885) and Calf of Eday (Calder, 1939), which are associated with similar material to the local brochs.

It might be suggested that at the present state of archaeological techniques, it cannot be hoped that any scheme of structural development could be supported unequivocally.

Cultural Affinities

All of the artefactual material associated with the brochs and the succeeding wheelhouses, plus other structures of the same date, falls into the general pattern of the Northern Iron Age, and has many parallels outside the broch province. The insistence of both Hamilton and MacKie upon a South-West England or Wessex series of parallels reflects not so much the absence of similar material elsewhere as the more developed state of knowledge of that area. Piggott (1955) is not alone in noticing strong similarities in both bonework and ceramic styles to Yorkshire at the same period, as exemplified since by Staple Howe (Brewster, 1963).

The/

The coarser wares of the earlier Iron Age in the northern part of the broch province bear a much closer resemblance to East Coast material than to anything on the West, and a movement into Caithness, Orkney and Shetland up this side of the country might well explain the appearance of multi-vallate and other promontory forts into this region. The distance from the Moray Firth forts to Caithness is negligible: the latter is visible from Cullykhan (Greig, 1971) or Portknockie (Ralston, 1980) on a clear day, and appropriate pottery occurs at both sites.

On the West Coast both plain and decorated urns of MacKie's Vault ware appear well before the brochs. It must be reiterated that not all Hebridean broch pottery is decorated. The erroneous impression that all western pottery is decorated arises from an understandable preference among excavators for the illustration of decorated sherds. In earlier excavations plain pottery merits a passing mention, if that. Similarly, the heavily decorated pottery from sites in Orkney, such as Ayre and Lingron is but a fraction of the assemblages. The basic forms of both north and west at the start of the Iron Age are variations on the slightly footed vase or urn, and this is succeeded in both areas by everted rim styles. Clearly, a case could be made that each area could have acquired these styles independently from southern contacts at about the same date.

The non-ceramic artefacts of most interest are bone-dice, spiral finger-rings and ring-headed pins (MacKie, 1971; Clarke, 1970). These will be discussed in relation to the Shetland sequence later (chapter vi) and it is sufficient to remark here that these artefacts are not sufficiently diagnostic to be of much use as support or refutation for hypotheses concerning the source of new traits in the north. The/

The simple wire ring-headed pin has a currency of five centuries or more (Stevenson 1955), spiral finger-rings are ubiquitous in the Middle Iron Age (MacKie, 1971) and bone-dice mark simply sites with good bone preservation (Clarke, 1970).

Indeed the same summary comments could apply to the pottery. The ceramic traits used as diagnostic (fluted rims, erected rims, decorated bases, cordons, incised decoration) are all relatively frequent and widespread both in locality and date (Cunliffe, 1978).

Certainly, there was a gradual movement of cultural traits, marked by artefactual styles, into both the north and the west of the future broch province during the second half of the first millenium B.C. But the whole assemblages of artefacts do not appear to spread, suggesting a lack of any major volkervanderung Langley (1975) has given examples of artefact distributions of a similar character which are certainly not accompanied by folk movements.

The dating of the events thereafter is less simple. On the evidence given above, in the reinterpretation of evidence from Clickhimin, it may be the case that the major phase of contact between the two parts of the broch province did not occur until after the broch building phase, and that the spread of the brochs was the spread of an idea, in the context of a common need, rather than the spread of a people.

It is the contention of this thesis that both the western and northern views of broch origin and development can be treated as equally valid, since neither is capable of proof or disproof with the evidence available at present. Both authors have sought to build elaborate hypotheses upon scanty foundations, and with misconceptions of the situation outside their own geographical regions of expertise.

It/

It is suggested that once the superfluous material in the form of misinterpreted and ignored evidence, is removed from both views, there is a simple sequence of suggested events which adequately explains observed facts to the satisfaction of all parties. The simplicity of the compromise is required, because the evidence is not adequate to formulate more than the most simplistic of hypotheses.

Synthesis: Via Media?

The aim of this summary is to present a coherent view of the events in the North and West of Scotland which led up to, accompanied, and succeeded the building of large numbers of brochs, structures which are designed to provide protection for large numbers of people against sudden attack. (The more detailed aspects of broch function are dealt with in the following chapter, iv). This synthesis is presented in narrative form, with as few detailed references to the foregoing discussions as is possible, in the interests of clarity. It is not offered as "the answer" to the broch question but as the bare minimum of theory which will account for the observed facts. Economy of hypothesis is the aim.

Around 400 B.C. immigrants are moving gradually, in small groups, in the area of the future broch province. They come from further south in Britain, by both east coast and west coast routes, in reasonably substantial vessels. They bring with them a tradition of tribal conflict, the skills of iron-working, and their own style of pottery, a carinated or high-shouldered ware. The later groups bring a new fashion to add to this, that of sharply-everted rims.

These immigrants are absorbed into the local population, as are their knowledge and tastes, easily at first but with increasing pressure on land as time goes on. This pressure results in the gradual organisation of society into a more rigidly defined series of units, and the first experiments begin into the construction of fortifications, in styles derived from the south but modified by local conditions. Thus multi-vallation, and even a few hillforts, appear in the north, while in the west the duns start to be built. The need for such structures is generated by an increase in raiding for food and land.

Perhaps/

Perhaps about 100 B.C., some groups are struggling for survival against the attacks of land-hungry neighbours and seeking desperately to improve their defences. Out of this spring the galleried duns and semi-brochs.

In the Shetlands the blockhouses, perhaps partly status-symbols (Lamb, 1972) and in Orkney and Shetland the stone-walled promontory forts may date from about this time, in much the same context. With kinship, trading and raiding, the inhabitants of the whole region are well aware of the various building techniques, and the climate is ripe for the invention of the broch. Almost any group could have made that invention. What is missing is the necessity for the brochs.

Something happens to precipitate what resembles, at a distance of two millenia, a veritable panic. Two possibilities are likely, either a sudden dramatic increase in the scale of slave-raiding from the South of Scotland, or even further afield (O'Neil, 1954) or, more probably, the arrival of a new wave of refugees, bearing the news that many more are on their way, looking for land to settle. The context of either situation would be the Roman push into Gaul and the apparently imminent colonisation of England. Either the idea is already known, or necessity is the mother of invention, and the broch is invented, most probably in the west.

Once invented, the idea spreads much faster than any actual cultural movement and is adopted eagerly by small clan or extended-family groups all over the west, as well as spreading to Orkney. In the Orkneys, the threat, which may be directed up the western seaways, appears more remote, and in consequence there is time for a period of experimentation, encouraged by availability of good stone. The height of the broch becomes a matter of importance, and the solid-based form is evolved. Already/

Already the idea of prestige is entering, and by the time the threat appears imminent, and Shetland, Caithness and Sutherland take to building brochs, it is the solid-based form that spreads. At the same time, the new, improved, version of the broch attracts interest in the west, and a few are built there.

The brochs of the west soon go out of use, but whether because they failed or succeeded cannot be determined. In the north a few late brochs are being built, purely as exercises in Celtic showmanship and defences are elaborated as the idea of the clan system takes root. The northern brochs may never have been called upon to face the threat they indicate.

About this time, the need for brochs is seen everywhere to be past and brochs begin to be dismantled and replaced by wheelhouses and other structures designed as domestic residences, although some groups may have felt a need to retain defences for a time, in the form of outer ramparts (Gurness, Clickhimin). This may be linked, or even partly due to, the movement of "broch people", perhaps from Caithness or Shetland, into the Central Lowlands of Scotland, where the distribution of brochs suggests the employment of these northern elements in a buffer role between pro and anti Roman tribes in the later 2nd century A.D.

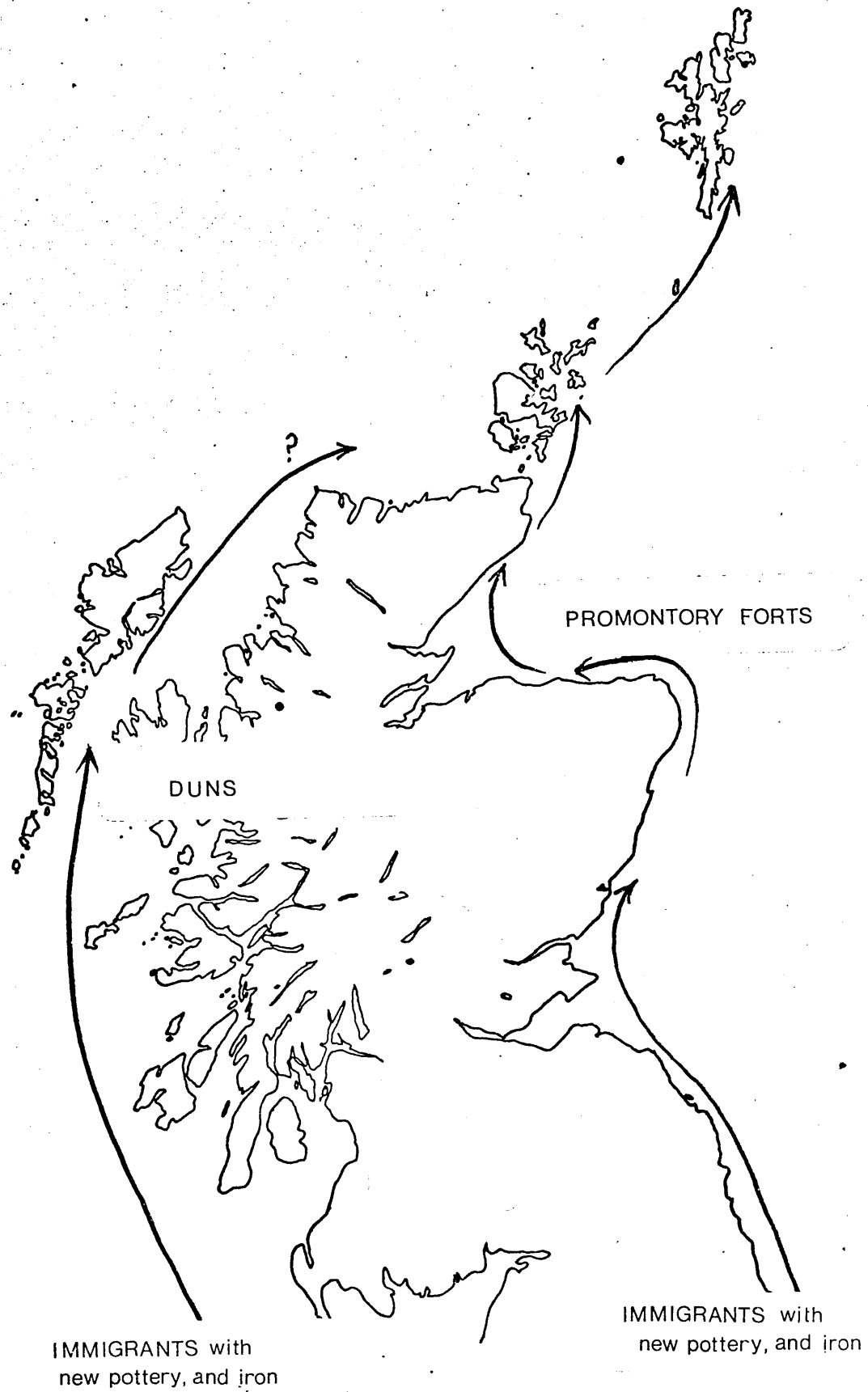
Returning to the north, the wheelhouse seems to have arisen while the brochs were going out of use, perhaps in Shetland. Its distribution suggests that the Orkney brochs had already been adapted into ordinary residences before the concept of the wheelhouse was developed. In the west, however, there was time for alterations to brochs before the wheelhouse idea arrived. This new phase marks the transfer of the site and remains of the broch from the community to a single family, and/

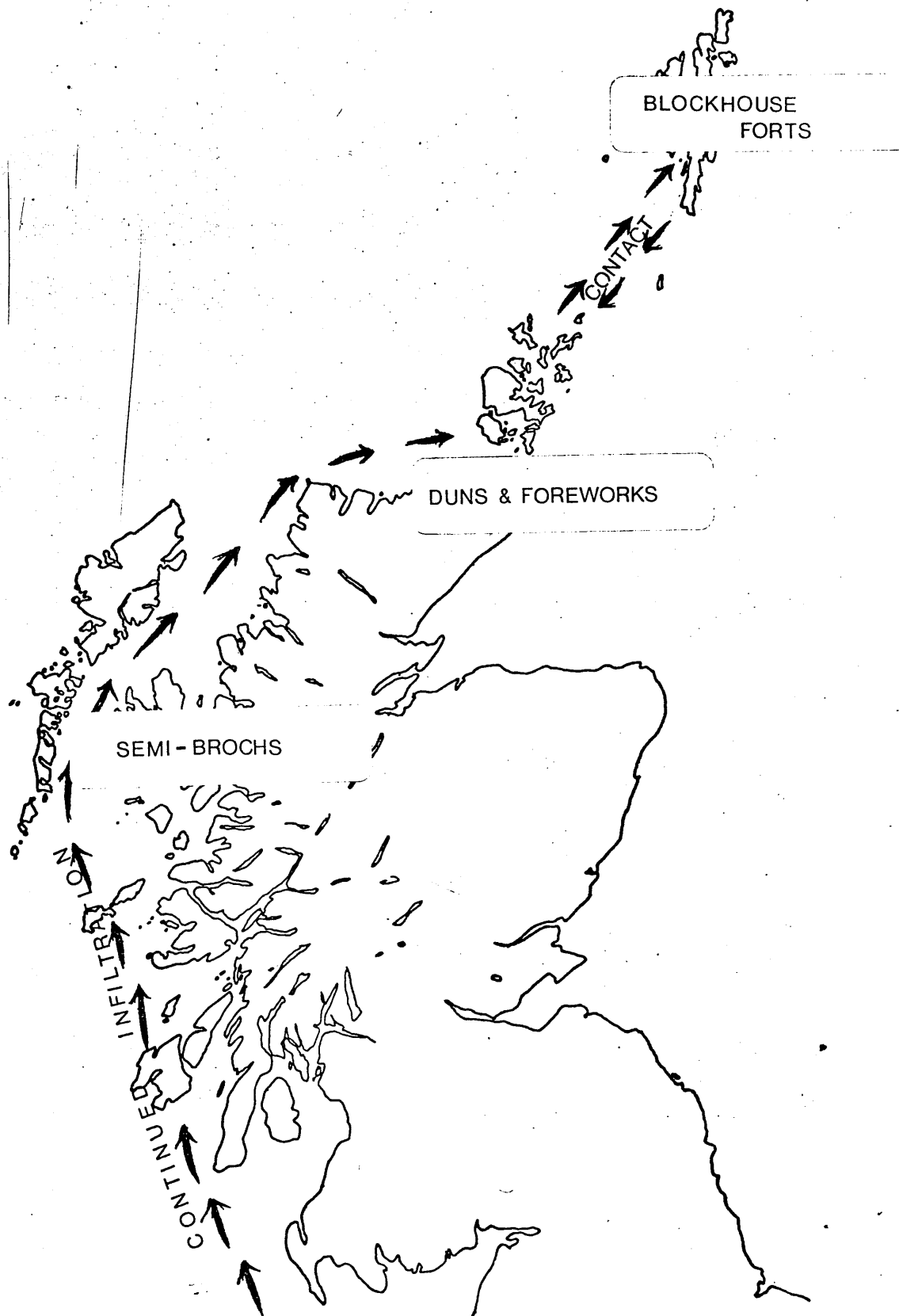
and must mark a thinning of the western populations. In the north, however, some groups remained clustered around their brochs, probably because in general these were less inconvenient for everyday life than those in the west, which were often on rocky eminences.

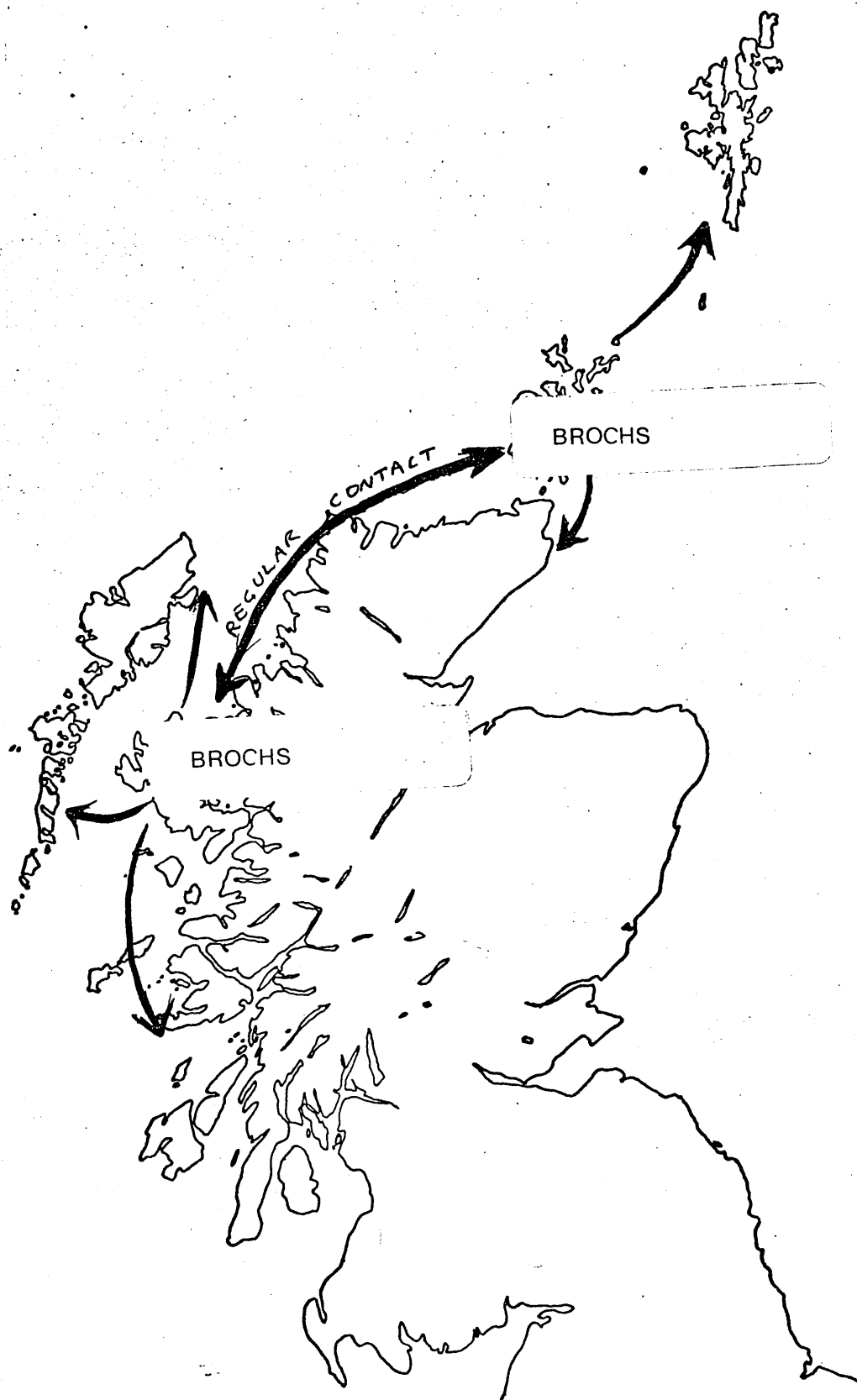
On this view, the wheelhouse period marks the greatest extent of west-north contact, but even here, it may have been mainly ideas, rather than people, which were in motion. There is really very little evidence for full-scale population movements at any stage in this process, as all of the observed facts could easily result from steady interchange of information made possible by contacts based on kinship, trade, and raiding.

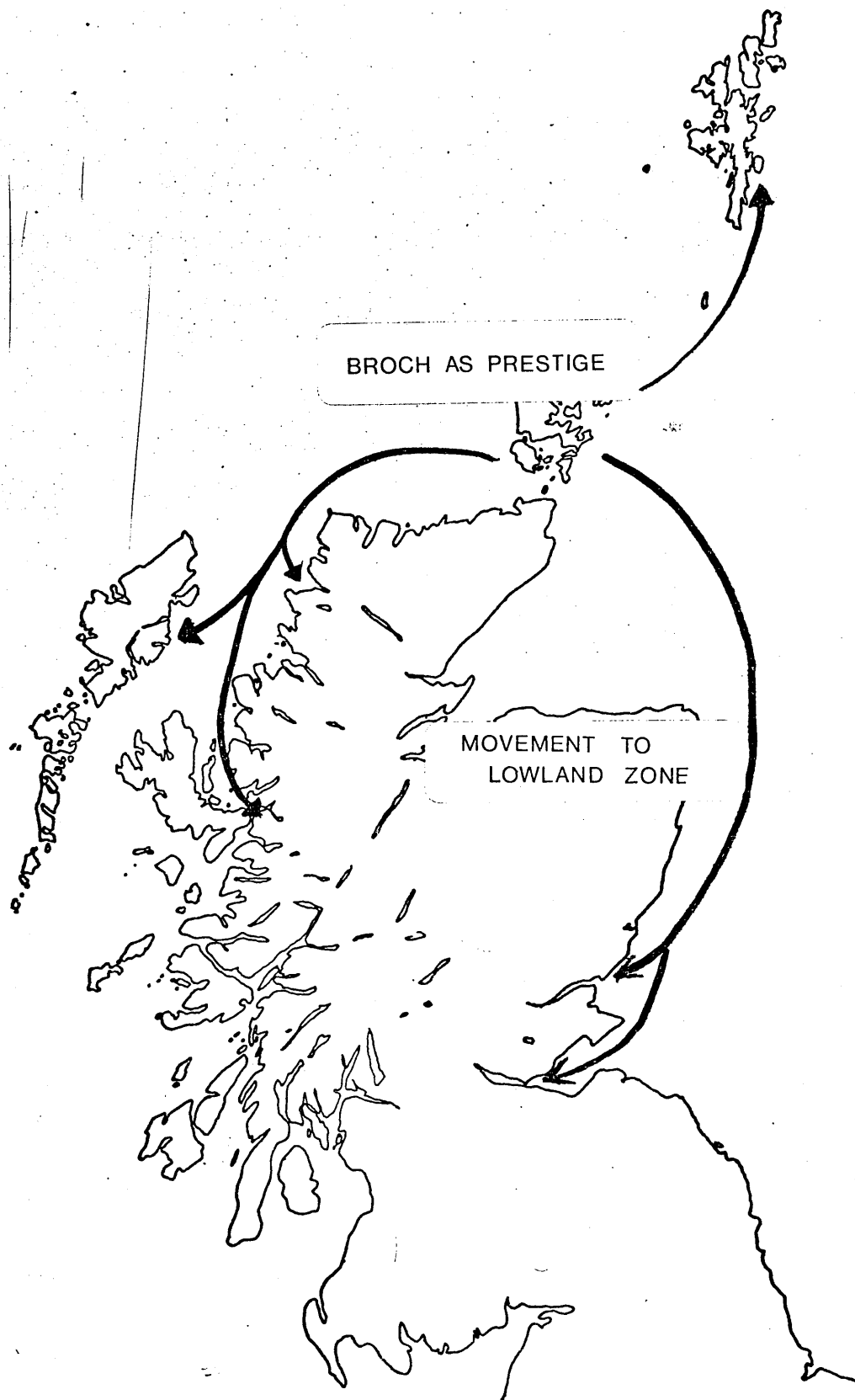
Clearly, this is just one possible view. It has the merit of explaining the observed facts, but most of it is vague and cannot be tested. This is inevitable. And if the information is not available to check this non-specific view of the events, how can it be expected that any more elaborate theories could be proved. Elaborate theories are only justified by good quality evidence, from many sites, well-excavated. Until we have this, it is suggested that the proposed via media will save much wasted critical effort and prevent future embarrassment.

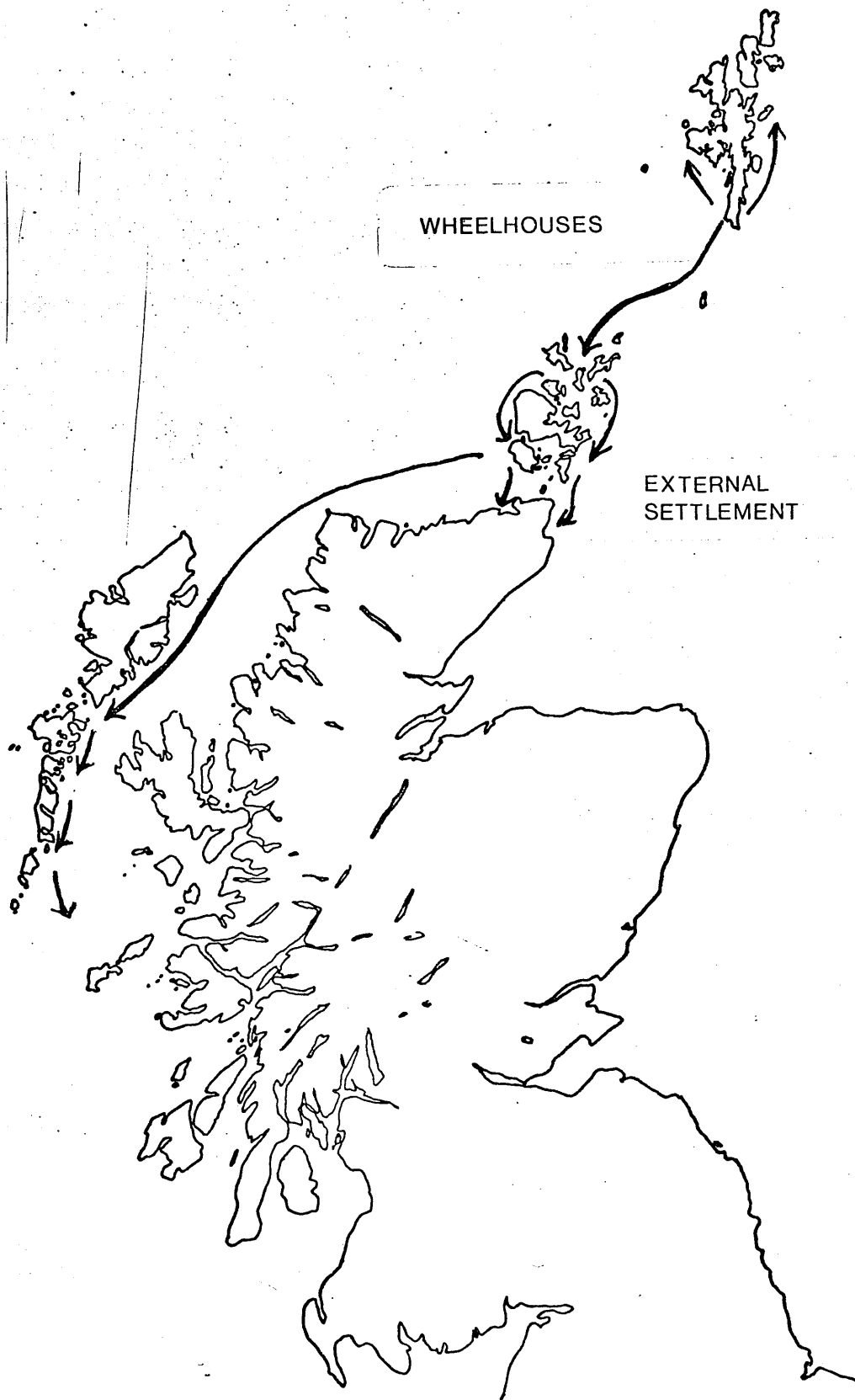
The stages, with purely arbitrary dates, are presented here diagrammatically:











CHAPTER IVMajor Unresolved Research Themes

The brochs of Scotland provide an excellent illustration in microcosm of the whole process of advance in archaeology since the inception of the discipline. To the original superficial, yet valid, questions of origin and function have been added whole new areas of doubt. (Anderson, 1779; MacKie, 1975). As research progresses, the pattern of progress is not one of definitive solution, but one of continued resolution, as the possible explanations for observed data are gradually reduced. This is in effect a splintering process, which creates of sweeping questions, few in number, a larger array of more detailed enquiries.

A process of excision reduces the range of possible explanations, as redundant hypotheses are discarded when disproved (the disproof of an archaeological hypothesis requires a single counter-example, and is thus more readily achieved than the proof of a hypothesis). Thus few would now support the building of brochs as being the act of Viking invaders, on dating evidence alone (Fergusson), while a sole function as lighthouses (Anon, 1895-96) seems unlikely on the grounds of location.

However, the basis of explanation is itself open to change. The data available increase constantly with field work, excavation and chance discovery. Thus the logical reduction of the range of possible explanations is aided by growth in the material foundation of the study. It is also aided by an increase in the power and variety of analytical techniques available to the archaeologist. Two advances in particular, the physical determination of likely age by radiometric techniques and the increased use of statistical approaches, have served to forward recent research. Other areas could doubtless contribute much: the second section of this study assesses the potential of geography.

As/

As it is clear that many aspects of broch studies are still unresolved, it seems worthwhile to attempt to isolate the main themes of enquiry, and to investigate the broad limits within which results may be expected to lie. Following upon the "total" hypotheses of the last chapter, the present is an attempt to delimit the problems left to archaeologists after two centuries of endeavour. In addition, it is hoped to make suggestions concerning the likely directions of advance in various aspects of this field.

Themes

Despite the study which has made the brochs the single most discussed monument-type in Scotland, it remains as a salutary warning to the archaeologist that the "six basic questions" all remain open to debate: the "what, why, who, where, how and when" of brochs can be discussed, the answers can be limited, but definitive solution remains, and may always remain, elusive.

In more detail, the current research themes can be set out as follows:

- 1) What are brochs? Are they a distinct class or part of a larger functional group? What was their intended function?
- 2) What were the changes, if any, in society which apparently demanded the construction of these curious edifices? Can evidence from sites and field work be used to suggest why this semi-standardised form should have been adopted in so many very different regions?
- 3) Who built the brochs? This must be considered in classical terms, concerning the racial and cultural background of the peoples who built brochs, and also in social terms, with reference to the status and structure of the societal groups which made broch-building possible.
- 4) Where do brochs occur? As elaborated earlier (chapter ii) this apparently simple question is beset by problems of bias in field work and differences over definition.
- 5) /

5) How brochs came to be built is very much part of why brochs were built and who built them. But another aspect of how: how did the people associated with brochs live?, remains to be elaborated.

6) When were brochs built? This simplest of questions will never be answered definitively, as such an answer would require dating of all sites. More fundamentally, archaeology does not possess dating techniques of absolute precision.

Possibilities

1) Nature and Function of Brochs

It may seem paradoxical that so much debate has centred around a structural type which has not, in fact, been securely defined. MacKie's definition has been used as a basis for this research, but this definition is, as all must be, couched in terms of probabilities rather than actualities. Thus the fact of height cannot be established, although it has been demonstrated that the proportions of wall-base and diameter seem best explained by a desire to attain height, (Graham, 1947) than by a desire to promote defence (Scott, 1947). There is still a significant volume of debate as to whether or not the broch is a production of definition, with the artificial grouping of a number of structures which represent the most widely-built type of a series of structures ranging both above and below the "brochs" in dimensions.

However, it has been taken as a basic presupposition that the broch did exist as an independent class of structure and that brochs were, as a rule, built to a height in excess of that characterising other drystone fortifications in Scotland. The detailed reasons for this are set out by MacKie (1973) and since there have been no significant advances in this field since that date, it would seem to be unnecessary to introduce further confusion.

Accepting/

Accepting, then, the basic definition (MacKie, 1965) of a broch, this is a drystone tower, of hollow-wall construction, the two wall-faces being separated by a series of galleries floored and roofed by transverse lintels which tie the faces together. The ground-level wall may be galleried or solid: in the latter case oval cells of beehive form are frequently built into the wall-base. The ground-plan is an approximate circle, from 15 to 25 metres in outer diameter, and the wall, which is usually regular in thickness, encloses a circular court of from 6 to 15 metres diameter. Access from outside to this court is by a single passage large enough to admit persons in single-file only and provided with checks against which a door-frame could be inserted. Usually a cell or cells opening off the entrance passage are present, and have been termed "guard cells". A draw-bar slot is commonly present at an appropriate location behind the door-checks. From the inner court, basal cells may open and access to upper levels of the hollow wall is provided by a staircase within the wall-thickness. At some distance above ground level at least one ledge, or shelf, runs around the inside wallface. This is termed the scarcement.

However precise the above may be, two elements of broch structure cannot be so defined. One is the actual height of now-ruined structures. The other is the internal wooden structures which all excavated brochs seem to have contained. The evidence for the latter is in the form of post-holes forming rings in the inner courts, concentric with the stone structure. The height can only be calculated by reference to well-preserved brochs, which may not be typical: indeed, the fact that such brochs have survived is itself an argument in favour of atypicality. Generally, the consensus of archaeological opinion has decided that scarcement and post-holes together can best be explained/

explained by reference to a hypothetical wooden floor, either annular or complete, raised above ground-level. Some writers have argued for a series of superimposed galleries (MacKie, 1973). However, the combination of features has also been explained as a roofing arrangement for ground-level accommodation. Here the arguments of Graham (1947) are crucial: double scarcements are known, and stairway access opening from scarcement level has also been remarked, while brochs with very low level scarcements are known: all points arguing against roofs supported on lower scarcements.

It is unfortunate that neither height nor internal fittings can be satisfactorily defined, as these have a vital bearing on the function of brochs.

Height would aid the defensive role normally assigned to brochs. It should be noted that Scott (1947, 1948) has raised objections to height as a definition of brochs. But it remains difficult to explain the labour input required to build a massive structure of broch-type if height is not a pre-requisite of the builders. As observed by Graham (1947), an adequate defence against all likely threats would have been provided by a thinner wall, vertical-faced in section. Only escalade and incendiarism would have been rendered more difficult by a heightening of the structure. If, then, height is taken to be a broch characteristic, on the basis of basal proportions, it follows either that the defence was against attacks likely to involve such methods, or that active defence was not the sole factor promoting height. It should be noted that use of the wallhead as a fighting platform would be rendered more difficult by the narrowing of the wallhead caused by increase in height.

The/

The other explanations advanced for height are vantage and accommodation. The former may well be of value as an explanation in relatively flat Caithness or Orkney, but fails to be generally valid in more hilly terrain, where brochs seem an unnecessarily elaborate alternative to the wider vantage provided by climbing a nearby hill. This is discussed in detail for the Shetland brochs, in chapter vii, following. A new and interesting idea is that the height of the broch may have been conditioned by the number of persons to be accommodated (MacKie, 1973). Thus tall brochs had more galleries and accommodated more persons. Against this must be set the observed fact that the tallest surviving brochs are not the largest in diameter, and an increase in capacity is more economically attained by increasing the potential floor area of wooden galleries than by increasing the number of such galleries. Thus if accommodation is to be taken as an explanation of height, then a series of constraints representing architectural conservatism would be required to account for the standardised, small, range of diameters. The question of why some brochs achieved the desired space by height and others by diametric increase must remain unresolved.

While it seems pointlessly contentious to contest the fact that broch design implies a largely passive defence, it does not follow that brochs were solely defensive in function. The major question to be answered is the extent to which the normal requirements of daily life were constraints upon the expression of defensive location and architecture. An approach to this question is attempted in Section 2, chapter iv. It has been suggested that some brochs were used as temporary refuges. (MacKie, 1974). Against this must be set the lack of contemporary non-broch structures suitable for non-defensive habitation. It/

It also seems inherently unlikely that brochs would be built at such great effort and then left to lie idle, or be used as storehouses, during most of their existence.

There are, in summary, three ways in which a broch could have been used:

- 1) A temporary refuge, used sporadically by a large number of persons and between times as a store for valuables (Anderson, 1779; MacKie, 1974).
- 2) A temporary refuge as above, but permanently occupied by a "caretaker" family (Graham, 1947).
- 3) A permanently-occupied residence for all, or most, of a local population, who recognised a need for occasional defence (Scott, 1947).

Both 1) and 2) would require domestic sites of broch date apart from the brochs, but within convenient distance. Such settlement evidence is not forthcoming in sufficient quantity. Explanation 3) has the advantage of not requiring other settlement at this period, and could explain the apparently rapid demise of the brochs. Life in a tenemented tower would have been inconvenient and unpleasant, even under the strict regime suggested in the preceding chapter. Once the danger of attack was thought to have passed, the broch would have been deserted in favour of more normally-proportioned dwellings.

In general it may be remarked that too much attention has been paid to obvious defensive aspects of brochs, and not enough to the more normal role of these structures as bases for the economic activities of the occupants. Just as many castles never saw sieges, so many brochs may never have suffered attack. The form of the structure may bear little relationship to the normal function of the broch.

2) The Need for Brochs

The sources of the desire to build brochs still elude archaeologists. Bearing in mind the inconvenience of the structure for normal agricultural life, there must have been some strong reason promoting the construction. The most simple explanation must be that brochs were built as a response to a perceived threat which could be combated effectively by this means. However, the lessons of the early Irish legends should not be ignored, and prestige may well have played some role in determining the style of construction.

From the stance of defensive function, the nature of the supposed threat can be deduced from the essential defensive features of the brochs. The main functions of the structure seem to be:

- 1) To discourage escalade.
- 2) To render projectile fire inwards inaccurate.
- 3) To provide an elevated vantage-point, if not an actual fighting-platform.
- 4) To prevent breaching of the doorway (by passive methods).
- 5) On the door being rushed and breached, to expose the unshielded flank of attackers to attack.
- 6) External ramparts seem aimed at preventing a rush to the wall-foot, and are not suitable as killing-grounds (see below).

It must be remarked that all of these often advanced functions are open to doubt. 1), 2) and 3) could be the results of height achieved for some other reason. In addition to 3), there is no evidence that the stair in all brochs reached the wallhead, nor is there any evidence of the form of the wallhead.

4) seems plausible, but a defended door would probably be a requirement to any structure more elaborate than an average family dwelling, if broch-period society resembled later Celtic society (Hamilton, 1968). The case of point 5) is weakened by the lack of consistency in the "left-handed" construction of brochs (Graham, 1947) designed to expose the right-side of attackers. Nor are single guard-cells consistently to the right, as /

as would be required (data from MacKie, 1973). A further blow to this point is that if wooden floors were in place, these would provide some shelter for attackers from attack from above, while the total lack of any evidence for the use of shields in this area and period completes the array of objections (Alcock, pers. comm.) The evidence on point 6) is complicated by the lack of pattern in the distribution of external ramparts (see below).

Accepting, for the moment, that the broch is best explained as a response to fear of a rush attack directed at the entrance, the source of this threat also presents an intractable problem. The location of many brochs would deny their use as cattle-safes, so their defence must be of persons, valuables and, perhaps, stored food.

The available explanations of threat must be few.

a) Internal strife (within the group) could only occur if there were a marked 'internal' division within the group, with the dominant group occupying the broch. This, Childe's "castle" concept (Childe, 1935), is negated by the need for a sizeable dominant group to be supported by a subsistence economy in terms of semi-hostility. The ruling group would need to impose their will upon the local population for the broch to be built yet there is no evidence for the dwellings of "peasants" of contemporary date. There is some evidence for social divisions, albeit of a cultural nature. MacKie (1974) has suggested a ruling minority of foreign extraction at Dun Mor Vaul, but this group lived in co-operation with the majority, who shared use of the broch.

Any more equable, factional division within a group would not allow the construction of a broch, since the work would be interrupted before it had progressed very far.

b) Local strife, among neighbouring groups, could be directed at four ends: to steal stock, to steal grain or other portable possessions/

possessions, to further feuding, or to take land permanently under control.

As noted above, brochs are not suitable to protect stock, the ideal structure for this would be lower and of larger diameter. The use of outer ramparts and walls as cattle-enclosures is discussed below. The permanent conquest of land is not a context which would favour broch-building, as opposition to such efforts would require to be made in the open. A broch is as hard to leave, if the entrance is guarded externally, as it is to enter. Once inside, the broch-users must either surrender, or wait for their attackers to give up and retire.

The level of material wealth is difficult to assess, as valuable objects tend to be lost less frequently than more mundane artefacts. Nevertheless, the broch-users seem to have been singularly devoid of possessions even for inhabitants of Scotland. There would presumably have been differences of wealth, but whether these were sufficient to occasion strife must remain doubtful. Differences in the possession of stored food seem also likely, but if grain or preserved meat were stored in a broch, this could be spoiled in the event of attack, if the owners were about to lose the struggle.

Only the feuding hypothesis remains unconsidered.

There is certainly abundant evidence for a clan-type societal structure from later records in Ireland, and many writers have inferred a similar situation in Iron Age Scotland (Hamilton, 1968; Jackson, 1964). Such a society would be hierarchical, with hereditary chiefship of small groups, each comprising one unit of a weak confederacies. This system of kings, high kings and paramount kings could provide a framework within which feuding between small, neighbouring groups might take place at the scale envisaged for broch defensive strategy to be effective. The aims of raids would be the taking of slaves, the/

the distraction of the victims while stock was run off, and the establishment of "military" supremacy with a view to the self-advancement of the individual leader within the overall hierarchy. This background of acknowledged leadership would account for the common use of brochs by all "grades" of a hierarchical society, and would incidentally account for the rapid spread of the broch idea (see heading 3 below).

c) Local raiding might well develop into a form of inter-regional strife. The details of such hostilities would be similar to the above scenario, with the addition of understandings between neighbours in the interests of mutual self-defence. By siting of brochs in intervisible locations, help could be summoned. This could act as a deterrent either by enabling a direct counter-attack to relieve the defenders, or more subtly, by making possible a counter-attack on the undefended base from which the aggressors had come. In such a situation, the logical development would be that raiding parties would cease to be drawn from individual groups, but would be gathered piecemeal from several groups, thus leaving behind a defence force.

It seems more than likely that a type b) raiding pattern would lead to a type c) pattern by a simple process of affiliation and conquest. The instability of alliances of this type would be high, and the hierarchical structure fluid within the limits imposed by kinship.

Certainly, in some areas, the requisite site-intervisibility is present (Rudie, 1976), but in other areas it is absent. Even in a situation of local mutual aid, the broch would still be required, as would-be helpers might be beaten back, or decide the risk of offering assistance was not worth taking.

d) /

d) Externally derived raiding has been cited as a possibility (O'Neill, 1954). This would have been sporadic and unpredictable. The aggressors could not have been a highly organised force such as the Romans, because a broch could not withstand systematic siege. Wandering bands of free booters, aiming at slaye and stock capture would provide an appropriate threat.

Whatever the source of such raids, be it "renegades" from within the broch region, inhabitants of more southerly Scottish areas, such as the Caledonii, or long-distance raiders of Belgic descent, from southern Britain or the Continent, the function of the broch would be as a bolt-hole. It would be unsafe, uneconomic and pointless for a small band to try to force a broch to surrender, once the defenders were inside. The broch might have been fired, but if slaves were the goal, this does not make economic sense, if raiding were a regular activity. The raiders would pass on, hoping to catch a group unprepared, outside their defensive walls. Simply delaying the attackers would be enough: the broch would require to be impregnable to sudden assault, siege warfare being out of the question.

The broch does not seem to be a suitable defence against permanent land-taking in force, which would have to be opposed on the beaches, although it might provide a short-term base for guerilla activities against smaller immigrant groups.

As a postscript on defensive strategies, archaeology, in terms of excavation would not help greatly to resolve the above discussion. The material from one broch group's possessions would have been similar to that from another's. Although a differentiation is suggested by MacKie (1974) at Dun Mor Vaul, this seems to be as much one of skill and background/

background as of status and power, although these paired concepts may not be unrelated. Only in the case of an external threat (external to the province) would material objects be distinguishable from the property of the broch occupants, but if the defence were successful, these would be outside the broch, and presumably not stratified, like the now-lost "slave-chains" from Fetlar (Low, 1774). The only proven case of an attack on a defended (?) broch is the peripheral example of the Roman destruction of Leckie, in Stirlingshire (MacKie, pers. comm.) where the scale of the attack suggests a propaganda attack, with siege engines of onager type.

By inference from negative evidence, brochs would seem to have been successful, since no excavation has produced evidence of destruction in a context of hostility. They could have been successful because they actually worked, or because by negating internal raiding, they promoted stability through a stale-mate situation. Most brochs may never have been attacked, but archaeology may never prove this.

Although a defensive concept, there is good reason to suggest, again from Irish parallels (Graham, 1947), that the prestige of the chieftain and of the group may have been a factor promoting building. While there was some need for defence, the need may not have been as extreme or as widespread as the distribution and proportions of brochs implies. Such an explanation might well be valid if the Irish model of society is favoured, as group chiefs would be related by kinship or marriage, essentially competitive both physically and in terms of status, and capable of organising the building of brochs. MacKie (1975) has pointed to/

to the professional fort-builders of Ireland as the model to explain the spread of the broch form, with architects going from court to court. However, if inter-court visiting were in vogue, the neighbouring chiefs would have seen brochs for themselves. But prestige is certainly a basic human motive which would account for the spread, if not for the initiation of broch-building.

3. Broch-Builders

Brochs were built by groups of people who could muster the skill, labour-force and time, the materials and the desire to do so. This banal summary covers wide areas of debate.

The level of skill required has been variously estimated, MacKie (1974, 1975) argues for professional broch-builders as a wandering craft-group, while Graham (1947) was of the opinion that any skilled mason could build a broch, given the requisite details of design. Certainly, at least one person in the community must have known what was to be built. The semi-standardisation of broch design has been used to support the idea of professional builders (MacKie, *ibid*) while the actual variety within this standard format has been used to argue for local copying of other examples (this thesis).

The labour-force would not be hard to supply, since the design of a broch places it in that class of structure where too many workers are as much of a disadvantage as too few, due to confusion and mutual obstruction. Feeding the labour-force, who would not be able to work at their normal activities while otherwise engaged, would be more of a problem. The re-interpretation of bone evidence from Dun Mor Vaul proposed in the preceding chapter would provide one way of feeding the labour-force, by use of the domestic herds as a food supply in greater proportions than was normal. Another method would be to recruit helpers from neighbouring groups in return for similar/

similar assistance. Of course, a broch could have been built by a small number of people over a long period, but this seems rather unlikely.

Gathering the materials would involve more work than building the broch except perhaps in coastal areas on the Old Red Sandstone flags of Orkney, Caithness and southern Shetland. In some areas the quantity of timber apparently required would be difficult to obtain, unless this was habitually stockpiled from driftwood (see below).

But the main aspect of this question has traditionally been the cultural origins of the broch-builders. This has already been discussed at great length in the preceding chapter, so it suffices here to say that brochs were almost certainly built by the labour of the aboriginal inhabitants under the direction of their rulers. Whether these rulers were wholly or partially of foreign origin or descent remains open to debate (MacKie, 1971; Clarke, 1971), certainly the society was open to outside influences. In the absence of any parallel structures outside the broch province, it must be suggested that conditions here favoured both the invention and the spread of this type of building in a way which was not the case elsewhere. The inventors required an appropriate technological background, sufficient motivation and the requisite power to see their concept realised. And beyond this, pace MacKie and Hamilton, archaeology cannot reach.

4) The Distribution of Brochs

The distribution of brochs is, of the six basic questions posed above, the most capable of definitive resolution. Although most structures classed as brochs are so ruinous as to fail to display all, or indeed any, of the characteristic broch features other/

other than a circularity of the correct order of size, this need not be an obstacle to study, provided that, consistent criteria for identification are applied throughout Scotland. However, regional differences have been discussed in chapter ii, which notes the fact that ruined circular structures stand a greater chance of being classed as brochs if in the north than if in the west. Another aspect of the same problem is that different field workers have differing criteria, and as few work on a national basis, this will again bias regional totals.

Nevertheless, it is arguable that despite continuing field work, the distribution of brochs will tend to be increased by density rather than by area, and new discoveries in recent years confirm this trend. With some 500 suspected or known sites, the geographical distribution is known at the gross scale. Even if some of these sites are not "true" brochs in the sense described above, they are of the same general type of small, circular, fortification.

While it would be rash to say that no brochs will be recognised in areas presently devoid of brochs, this must be highly unlikely. Thus the core of the "Broch Province" remains Orkney, Shetland, Caithness, Sutherland, The Isles and the extreme Western Mainland. The outliers in Galloway and the Central Lowlands have been noted, and various politico-historical reasons for their presence advanced (see chapter iii, above).

The most striking feature is the total absence of brochs from the Grampian Highlands (Shepherd & Ralston, 1979), from the mainland portion of Argyll and from the core of the Southern Uplands. All of these regions are characterised by various forms of hill fort, and without indicating any necessary cultural differences, it may well be a valid observation that the nature of the land in non-broch areas is conducive to a larger basic unit/

unit of society than that associated with brochs. The absence of brochs from mainland Argyll might be explained by an early establishment there of duns (RCAHMS, 1970), but this awaits conclusive dating evidence.

5) Economic Activities

The reasons for building brochs have already been discussed. But for most of their apparently short existence, brochs must have served, in the absence of other sites, as centres for the normal daily life of small clan or extended family groups, each probably possessed of a chief capable of some organisation of activities, but principally concerned with leading fighting parties.

There is much information on the qualitative aspects of broch economies, but little on the quantitative side. This is because early reports simply listed material evidence.

Barley (bere?), and possibly oats, can be listed as crops, sheep, cattle, pig, goat (?), horse, seal, whale, seabird and fish bones are known and shellfish were used extensively on some sites, either as bait or as food. Bronze and iron are known to have been used, together with small quantities of silver and gold. Stone and bone, together with metal, formed tools. Timber was used to some effect in construction, and peat and scrubwood provided fuel. Cooking may have taken place by trough-boiling or by roasting, and pottery capable of cooking by direct heat also becomes available about this period. Bedding seems to have been provided by heather, which also served as thatch for some external structures, if not the brochs themselves. Spinning was practised, and presumably weaving, although conclusive evidence for the latter is absent.

From/

From this inventory, a detailed picture cannot be reconstructed. The relative importance of species as food-sources is not known in any detail (except from Dun Mor Vaul, Tiree; MacKie, 1974), other than that sheep is usually most frequently represented among animal bones. The determination of the sources of animal protein is complicated by butchering practice: the larger an animal, the less likely it is to be slaughtered on site, and the more likely it is to arrive there in joint form: a site population's entire animal protein could derive from whalemeat without whalebone ever occurring on site. The proportion of wild versus domesticated input is difficult to assess for similar reasons, to which must be added the observation that some "domesticated" species, for example the Shetland sheep, are effectively wild, in that they must be hunted qua game. Similarly, the proportion of fish is difficult to assess. While Heisler's (1976) suggestion of fifty percent protein intake from marine sources must surely be excessive, the general absence of fish-bones from excavation reports does not mark the absence of fish but the non-recovery of their elusive bones. This has been demonstrated for an earlier period by Clarke's re-excavation of Skara Brae (Childe, 1926; Clarke, pers. comm.) Worst of all, even today the attitudes of excavators towards environmental evidence are not all that might be desired: there is at least one broch excavation of the last decade where the bones were sorted by a non-specialist who "kept anything the experts might identify."

The problem is two-fold. Firstly, the material actually deposited on site has been selected by various processes, such as butchering practice, and will have been deposited in a specific way. There may be a separate dump for bone (potentially valuable) and general domestic refuse. Thus the deposition of economic evidence is non-random. Secondly, no excavator has undertaken the total excavation of a sizeable area around a broch/

broch. Therefore, all excavated economic evidence has been derived by a process of non-random sampling. Obviously a total excavation on this scale and level of detail would be prohibitively costly of time, labour and finance.

On a broader scale, little is known about contacts among brochs and between broch-users and other cultural groups. On the local level, since all possessions must have been essentially similar, any trade might be presumed to operate on a surplus/deficit basis dependent upon the potential of each group's area of exploitation and their powers of acquisition of "luxury" items. The expected trend might be towards a balancing-out of dietary variety (see Section 2, chapter iii).

Trade outwith the "Broch Province" should be marked by exotic material. Such material, if found, could also have arrived by raiding, or have been brought by immigrants. For trade to operate, there must be exports as well as imports. The only plausible exports from most of the area would be wool (woven, yarn, or raw) and hides. The only evidence is the (doubtful) "votive miniature" of a bale of wool from Dun Fiadhairt, on Skye (MacLeod, 1915). Caithness, Orkney and south Shetland might have generated surplus grain in good years.

Much of the raw material for metal-working, while available in the broch area, must have been brought to individual sites, as must major structural timbers.

Such evidence as there is of exotic material is as likely to be explained by "collection" (perhaps by force) as by trade.

6) Date of Construction

The date of building normally ascribed to brochs is the last century B.C. and the first century A.D., with the brochs of/

of the Central Lowlands representing a late example of the art, in the mid-second century A.D. So far, only two brochs in the main area of their distribution are dated by radio-carbon, and at only one of these, Dun Mor Vaul, can dates be associated with construction. This relevant date is in the mid-first century A.D. Of the Lowland brochs, Leckie and Buchlyvie both date to the appropriate mid-second century A.D., the latter site providing a sealed pre-construction date. In addition, two structures of semi-broch type have produced first-century B.C. dates. This is the extent of the absolute chronological evidence.

Against this scanty picture, artefactual evidence can be of some help. The finds of datable Roman material in post-broch levels in the north would suggest broch-building ended around the time of the Agricolan incursion, but this is of course heavily dependent upon the rate at which such derived finds travel, itself conditioned by the mechanisms of acquisition.

Other evidence, such as ceramic styles, is of little use in precise dating, as it has long been customary to date styles by their association with brochs, and circular reasoning ensues. The advent of the rotary quern may be of some value as a horizon in relative terms: if it spread with any rapidity, its first occurrence at broch levels at Dun Mor Vaul, roundhouse levels at Jarlshof and wheelhouse levels at Clickhimin could be used to support the theory that the northern brochs are older. However, both broch and quern could have been introduced at Vaul, and if the broch idea spread more rapidly than the rotary quern, the same pattern would be observed.

There is really no justification for the "short" chronology of broch-spread, other than the close similarity of structures. This/

This in itself is no guide in the absence of any measure of the conservation, or otherwise, of local architecture at this period. In view of the early radiocarbon dates for the broch-like structure at Bu of Cairston in Orkney (6th century B.C.; Hedges, pers. comm.) a longer chronology might be reconsidered, with the spread of brochs paralleling a slow change in the relationships of social groups. It seems illogical to suppose that the few sites firmly dated should be end-points of any chronology.

Quite simply, brochs are built for an undefined period in the Iron Age, probably everywhere before wheelhouses. The date of the earliest brochs must remain undefined unless MacKie's (1965) origin-theory in semi-brochs is accepted.

These then, are the main fields of enquiry open to research. Some are clearly more capable of resolution than others. In all, too much superstructure of theory has been built upon too little substance of fact. The difficulties of interpreting excavated and field work evidence are manifold, and before passing on to attempt to resolve some of the above questions more finely, it must be noted that brochs are not the only structures characteristic of the Broch Province. Many brochs display lesser structures, both internal and external, and an examination of the relationship of these to brochs provides a convenient vehicle within which to illustrate the scanty nature of our knowledge of brochs.

Status of "Subsidiary" Structures

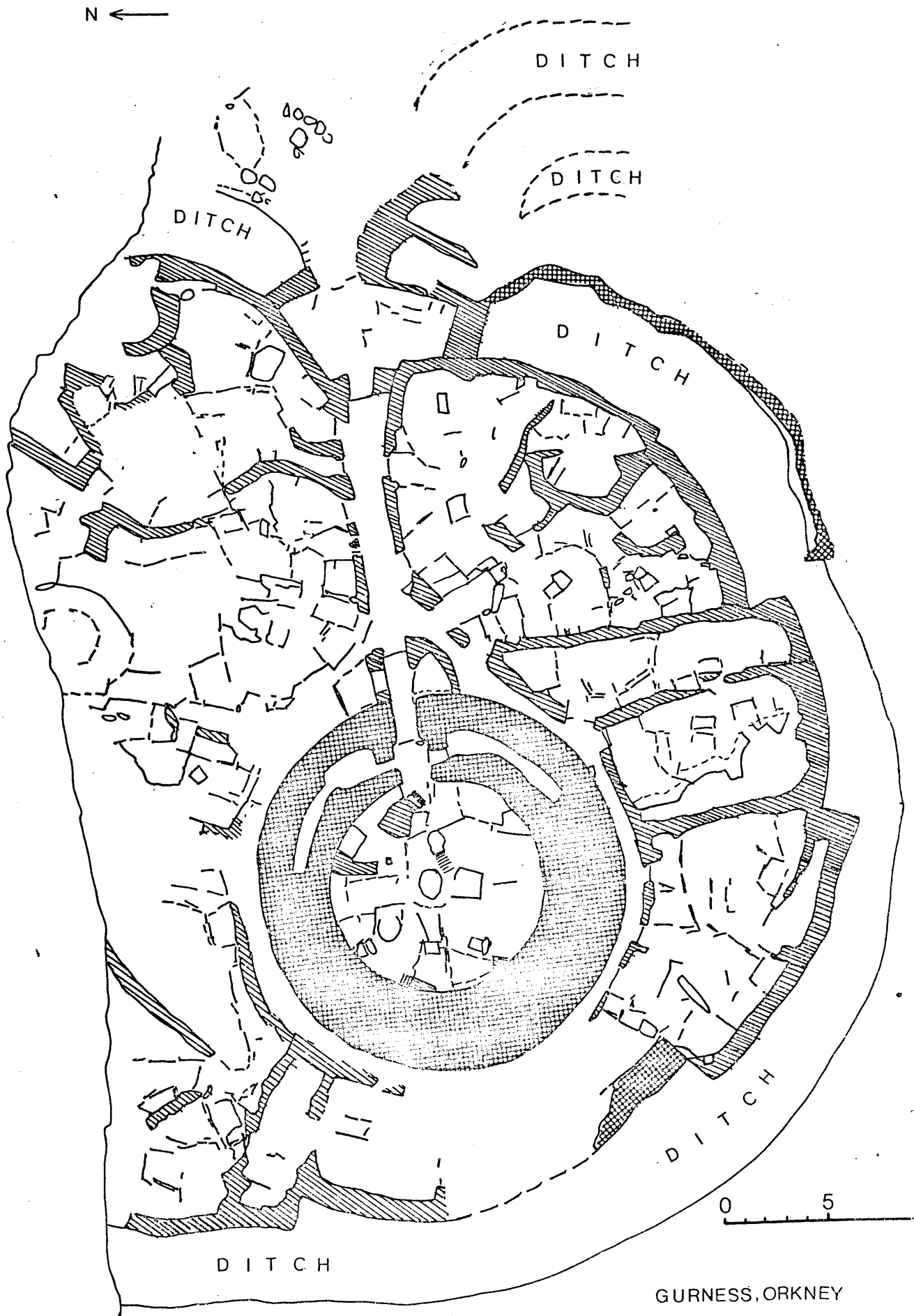
Until the advent of stratigraphic excavation it was customary to assume that the low, ruined, structures around many brochs were contemporary, the dwellings of lesser members of the broch group, or the servants of the broch lord (Childe, 1940). Once thorough excavation began, it became evident that this interpretation could no longer be supported. Excavation also began to reveal internal stone structures which required explanation.

"External" buildings of a wholly earlier date are now known, but are few in number. At Jarlshof a village of some longevity lies around the broch, although this was probably covered by blown sand before the latter was constructed. At Clickhimin a farmstead of local type was certainly in use up to, and probably during and after, the building of the broch. But in most other cases, external buildings do not seem to be earlier: probably because any disused structures would have furnished convenient sources of building material.

In general, it has become normal to assume that broch external buildings represent the inhabitations of the broch-builders and/or their descendents consequent upon the disuse of the broch (Piggott, 1955). But this view is just as unfounded as the earlier views of Childe (1935) cited above.

Although on most sites the external structures seem to be later, this need not imply that they belong to a substantially different period. At some sites, notably Gurness and Crosskirk, there is little reason to suppose any considerable lapse of time between the completion of the broch and the construction of the first outer buildings (Hedges, Fairhurst, pers. comm.) This near-contemporaneity is supported at these sites by ramparts which appear to be contemporary with the broch and are clearly designed to enclose a much larger area than that required for the broch alone (see Diagram 1, iv, 1).

However, at other sites, there is evidence for some lapse of time, represented by build-up of deposits, before external dwellings/

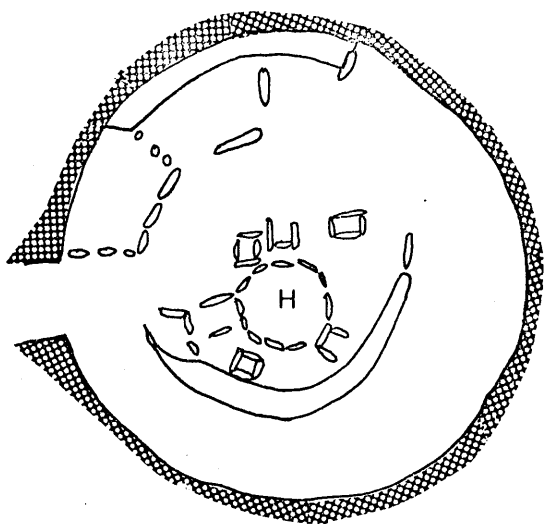


dwelling appear. Eastshore, in Shetland, is an example of such a site.

Although artefactual material from outer buildings may be very much later than that from brochs, this need not argue for a building date much later, but only for a more lengthy period of occupation, as would be only natural considering that a broch is not an ideal residence for a people not constrained by fear of attack. This situation is complicated by the certain fact that much material normally assigned to the "broch period" (MacKie 1971, 1973) is in fact derived from unstratified excavation of sites with both brochs, external and internal structures. The classic example of this is the Shetland neck-band style of pottery (see chapter vi).

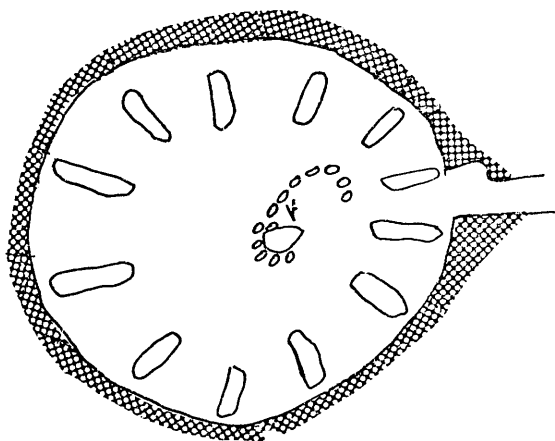
If the reason for broch-building could be identified, the earliest date at which external building might be expected could be estimated. Alternatively, an accurate estimation of that date might help to clarify the nature of the need for brochs! It is almost certain that the answers would vary from site to site; there may never have been enough brochs to house the Orcadian population, while in Shetland this seems a distinct possibility (see Section 2). Only further, and highly-skilled, excavation can hope to resolve these questions of relative dating upon which depend the social interpretations placed upon external buildings.

Brochs' internal stone-built structures represent an area of similar vacillation. For convenience, such structures can be divided into two categories. The first is the fully fledged dwelling, in the form of a casing wall with or without piers, "dropped", as it were, into the broch interior. The close similarity of Shetland examples of this type to free-standing circular dwellings in the Hebrides has led to their inclusion in the "wheelhouse" category, but in most cases the inserted dwelling is of a much more rudimentary form (Diagram 1, iv, 2). Every carefully-recorded excavation has revealed a considerable lapse of time, measured in terms of depth of occupation/



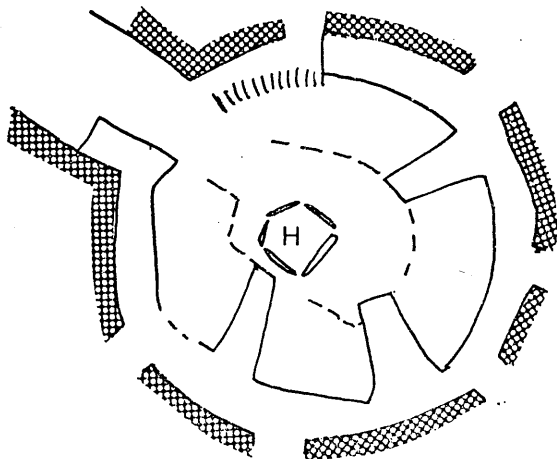
1

RUSSLAND,
ORKNEY



2

A'CHEARDACH BHEAG,
SOUTH UIST



3

MOUSA,
SHETLAND

0 1 2 5m

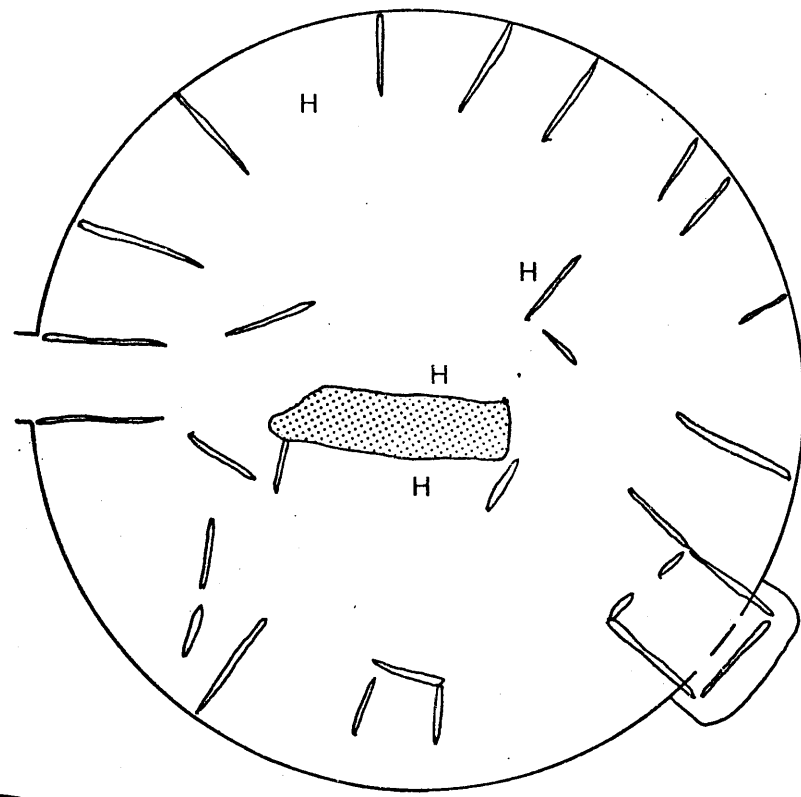
occupation deposit, between the building of the broch and the insertion of the later structure.

The second category of internal structure, particularly common in Caithness and Orkney, is characterised by the insertion of partitions formed by slabs and lightly-built walls, sometimes accompanied by a light inner casing wall which supports these divisions (Love, 1978). These additions seem incapable of bearing the full weight of a roof, and divide the interior in a fashion which would not be very convenient for human use, but seems more suited to provide cattle-stalling (Burrian, Kilmster, Crosskirk), storage space (Gurness, Ayre) or combinations of both (Midhowe, Netlater). The most common element is a partition starting just inside the broch entrance and running diametrically to the opposite rear inner face. Examples of typical arrangements are shown in Diagram 1, iv, 3.

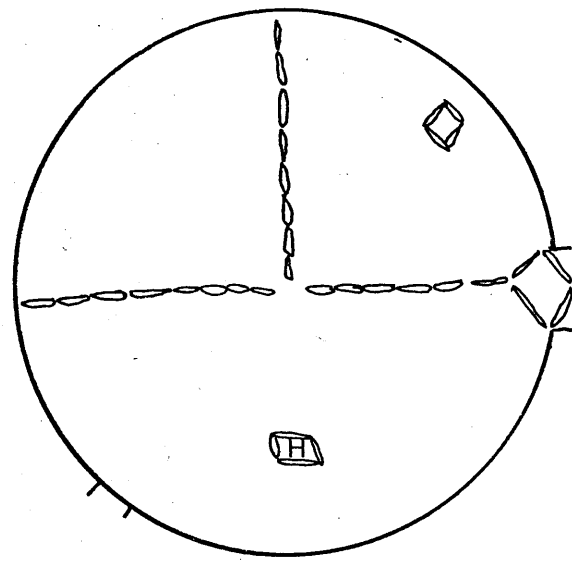
The suggested functions of stalling and storage would be compatible with the use of brochs in their primary form if that form did, indeed, involve the use of raised wooden floors. The dark floor-level would be eminently suited to these purposes. However, if a raised floor is not to be an essential element of broch design (Scott, 1947) then these partitions must be modifications made after the use of the broch as a defence had ceased, as they hinder free movement within the courtyard.

Because structures of the first, more substantial, category have been dated as clearly secondary to the original utilisation of their host brochs, the supposition that all internal structures are later modifications has been made, albeit subconsciously (MacKie, 1973).

In/

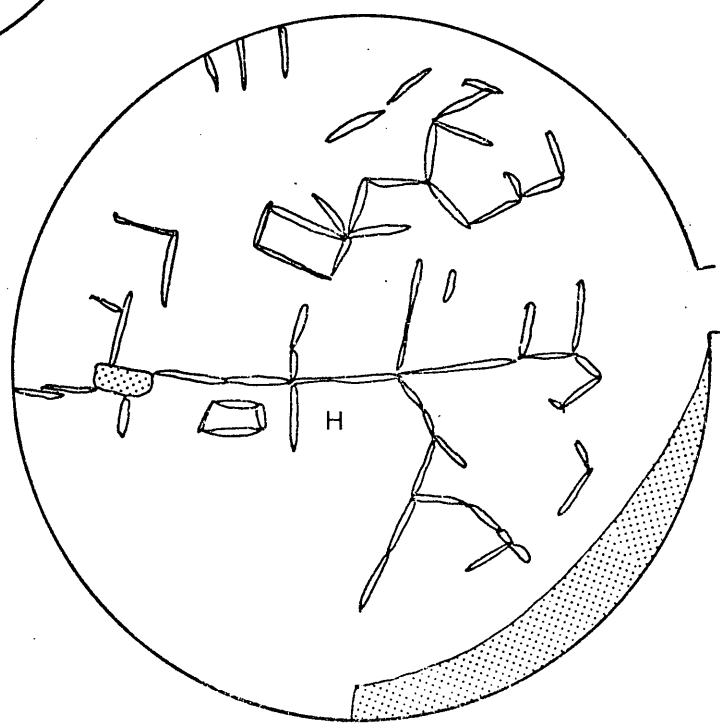


SKITTEN,
CAITHNESS



NESS,
CAITHNESS

MIDHOWE,
ORKNEY



H: Hearth

In fact, as noted above, such flimsy partitions are quite compatible with the use of brochs in their primary form, and indeed at the three well excavated brochs with such features, the excavators in each case remarked that while structurally later, the partitions seemed to be of original date, and were inserted immediately the broch was completed. The sites in question are Midhowe (Callander and Grant, 1934), Skitten (Calder, 1948) and Crosskirk (Fairhurst pers. comm.)

Thus while lightly-built internal additions are structurally later, there is no good evidence, except at Keiss Road broch (MacKie, 1975; Blair, 1978), for their being considerably later. The more heavily-built additions do seem to be a generation or more later than the building of the broch. External buildings may, in many cases, be much later, but on some sites the observation is inescapable that these structures formed an integral part of the original conception: the byres at Yarrows are a good example, as are the structures around Gurness.

The point of this excursus has been to demonstrate that the explanations attributed to phenomena almost invariably run ahead of the information required to prove the true situation, and that when such information is forthcoming, it consistently causes major modifications to the original schemes of explanation.

SUMMARY

Having systematically demonstrated that there is in fact very little hard evidence available to either support or reject most recent theories advanced to explain the phenomenon of the broch, it remains to the author to suggest a remedy to this situation.

The first essential is that a consolidation of evidence is required. Much is known about brochs, but the significance of the individual facts is unclear. Secondly, it must be appreciated (as has not been the case up to now) that "explanation" in the classical Childean socio-historical mode may not be possible on present evidence, if, indeed, it ever will be. Many of the critical factors in the above discussion of ignorance cannot be excavated, or measured in the field, and even the basic postulates, such as the fragmented nature of social organisation, or the parallels with later Celtic society, may not be valid.

How, then, is progress to be made? As illustrated above, while solutions to individual questions will remain elusive, the range of answers can be narrowed by collection of more data. Further, attention can be concentrated upon the aspects of broch studies most likely to yield to analysis. Of the six broch questions, those of function, date and economic activity may yield to careful study and excavation, while economic activity, distribution and function may be studied through the medium of field observation.

The remainder of this study represents an attempt to apply the lessons learned from the foregoing discussion of the origins, present state and main shortcomings of broch studies in general, in a practical manner. Taking as example the brochs of Shetland, a detailed study is undertaken of the "traditional" archaeological aspects: structure, defences and/

and artefactual assemblages, to attempt to assess the relationship of Shetland's brochs to the overall Scottish picture. Then the study is carried, in Section 2, into the field of palaeogeography, in an attempt to bring the neglected techniques of spatial and locational analysis to bear on some of the basic problems, particularly those of economic activity and designed function.

This study must represent a first instalment of a larger reappraisal of the available evidence. Ideally, the next stage of broch studies should be an extension of the overall (national) analysis of MacKie (1973) into a series of even more detailed, integrated, regional studies. The increased level of local detail is required to generate data detailed enough to reduce the range of explanations possible for brochs, as discussed above. Until such data is available, it is suggested that further elaboration of hypotheses on a national scale should be avoided. The conclusions made hereafter will be held as valid only for Shetland. They may point the way for work in other regions, but should not be thought of as in any way representative of anything other than the data upon which they are based, that of the most northerly twenty percent of Scotland's brochs.

CHAPTER VShetland Brochs: Earlier Work

The brochs of Shetland are favoured with the earliest literary evidence of any, with references to Mousa (Mosey jarborg or Moseyarborg) in two Norse sagas, when it is reputed to have served as refuge to "roving lovers whose fortunes drove them to require a retreat." (Stuart, 1859). About 900 A.D. Bjorn Brynjulfson and Thora Roaldsdatter sheltered there from the wrath of the lady's family, while in the 12th century, perhaps 1153 A.D., Earl Erland and Margaret, mother of Earl Harold, similarly found refuge there from the followers of Margaret's son. In both cases, the besiegers were forced to come to terms, having failed to penetrate the stronghold without risking the death of the inhabitants, including the ladies. (Egils Saga, chapter 32, 33 and Orkneyingasaga, chapter 101).

The inference has been drawn from this that brochs were impregnable. However it must be borne in mind that in both cases the lives of the defenders were to be saved at all costs, so such methods as burning were out of the question. This may have some relevance to the concept of the brochs as intended to protect persons against attacks whose aim was to capture slaves.

It has been remarked that Mousa is the only broch mentioned in any literary source, and that therefore the other brochs were ruinous by this date. This argument is erroneous on two counts. Firstly, Burrafirth (probably West Burrafirth, in Sandness) is also mentioned in Orkneyingasaga, and the frequent "brough" and "burra" placenames argue for at least a strong local memory of fortifications. Secondly, the sagas are not descriptive documents. They only mention topography or settlements when these have a bearing on the human histories related. Mousa is simply the only broch to play a major role in one of the story-lines of a surviving saga.

However/

However, evidence will be adduced from other sources to suggest that some, perhaps many, Shetland brochswere ruined by this date, the survivors being those brochs built in relatively inhospitable places, or quickly buried in sand or other material. These taller broch remains also lack extensive external settlement. Those observations will be discussed below (chapter vii).

Mousa is also more likely to be recorded, lying as it does on a fairly accessible landfall for vessels keeping out to seaward of the treacherous waters of Sumburgh Roost, on the long established route from Orkney, via Fair Isle and Shetland, to Norway.

The next record of the Shetland brochs is Low's Tour of 1774 (published 1879, new edition 1978), the most complete account ever published of Shetland life in its pre-Improvement stage. At the date of the Tour, the majority of brochs, of which Low was a keen recorder, were in their present state, with Culswick, Burraness, and Levenwick, the only examples standing much higher. Low contributed to the destruction: "The use of the small apartments in the wall seem to have been for concealing anything precious, but in those I broke up, found nothing to support this conjecture or to lay the foundation for any other." Low, 1774, p. 127 of 1978 edition.

Of the other early Tours, only Hibbert (1822) makes any mention of broughs, and then only passing references. In general, they are referred to as "Picts' Houses" or "Picts' Castles", and although early antiquarians used this to infer an immediately pre-Norse date on the philological grounds that "brough" or "borg", being Norse, inferred that the brochs were recognisably fortifications at the first Norse settlement. However, it is a fact that "brough" was probably an active element in place-naming until the nineteenth century, and the majority of modern "brough" names may well date from much the same awakening of antiquarian interest/

interest as the widespread and ineradicable "Picts' House." This is demonstrated by the fact that during field work in South Dunrossness a local informant told us that the farm at Clumlie had "always been called da Brough", despite the fact that the broch was only recognised as such by the late nineteenth century excavations of Goudie, and that the site had previously been "Brae of da Nort Yard". "Clumlie" itself is almost certainly derived from the Gaelic name of Columba, and seems to be one of the few authentic Gaelic-based placenames in Shetland.

As an aside, it may be noted that "broch" is totally unknown in Shetland, a much softer "brough", (with an almost unsounded "ough"), approximating to aw in "braw", being the local pronunciation.

Serious antiquarian interest begins with an urgent dispatch from Dryden to the Society of Antiquaries of Scotland, calling for repairs to Mousa, which was reported to be rapidly falling into disrepair (Dryden 1858). A committee was duly elected and funds subscribed to undertake the work. It is interesting that, in the absence of any mention of stone-robbing, the broch which had stood so long should be in such immediate danger. Either repairs had been made in the past, or else the threat was over-emphasised, an occurrence not unknown in "rescue" operations today.

An estimate of the work required was commissioned, and a tender of £45 to "put the place in anything like an ordinary repair" was submitted by James Barron, the senior mason working on St. Magnus, Kirkwall, as "the top of the wall will require to be levelled up, two parts of it having fallen down, measuring about nine feet in length by five feet in height". Doubtless, this wallhead collapse accounts for much of the nine feet depth of debris removed. The consolidation was carried out, and the entrance gained in 1852 strengthened. This, it later transpired, had been broken through into a cell above the original entrance passage. The true entrance remained concealed by rubble for a further/

further fifty years.

In the paper presenting the estimate, Stuart (1859) also discussed Shetland brochs more generally, and the acuteness of his observations provides a salutary reminder that the modern desire to "publish at all costs" did not operate in the nineteenth century. A considerable body of developed local antiquarian knowledge plainly existed, despite the absence of published material.

The broch was defined as a drystone structure with two concentric walls, with galleried spaces between, gradually narrowing as the walls converged and linked by a rude stairway. The author went on to comment upon the variety of ground-plan distinguishing for the first time between solid-based and ground-galleried forms. The presence of ruined houses to seaward of some brochs, notably Mousa and "Houbie" (Feal?) was noted, with the implication that if houses of contemporary date had existed, then they might be expected to lie on the defended parts of sites, particularly to seaward of brochs on promontories, a view which has much to recommend it should the excavation of such a site become a possibility.

Rejecting a Scandinavian origin because of the lack of parallels in that area, Stuart concluded:

"We may conceive that the burghs were found suitable places of refuge for the people and their cattle while their enemies were threatening an invasion, for..... it was improbable that the Northmen would abandon their vessels and lay siege to the burghs, which were very numerous, and not likely to yield to the sudden dash with which those hardy rovers so frequently carried everything before them, if the inhabitants had once been able to make good their retreat within their lofty walls. Accordingly, the burghs appears to have been mere places of refuge, with no external opening or other arrangement for enabling their occupants to act on the offensive". Stuart, 1859, p.187.

With/

With minor modifications, chiefly concerning the origin of the attackers, this has remained the standard, accepted, view of broch function for over a century.

During the late 1860's and early 1870's broch studies in general flourished, with papers by Petrie (1872), Anderson (1871), Joass (1871), Dryden (1872), Traill (1872) and Thomas (1871), all of these awaiting publication until 1890. Petrie's contribution on Orkney contained summary details of the dimensions of the eleven best-preserved brochs in Shetland supplied by Dryden and Irvine.

The attention of the Scottish Antiquaries was focussed on Shetland in the 1871-72 season, with the paper by Dryden (above), and shorter papers by Goudie (1872) and Coughtrey (1872). The last deserves brief mention as the first serious attempt to analyse any of the material associated with brochs - the "weaving" combs - although the specimens discussed did not come from a broch site, but from an unassociated midden at Hillswick.

Goudie's excavations at Levenwick mark the start of serious Shetland broch-digging, excluding Dryden's efforts at Mousa and Clickhimin with "some gentlemen from Lerwick". The county was spared the ravages of enthusiasts of the Orkney-Caithness mould (Anderson, 1901, gives a harrowing account of the operations of Sir Francis Tress Barry in Caithness).

For its period, Levenwick was an exemplary excavation, and was specifically aimed at elucidating the nature of the broch structure, rather than seeking for artefacts. Unfortunately, slight ambiguities in the excavation report led to a critical misunderstanding. The account reads as if there are two stairs, the northern one blocked at some stage in the history of the site by a facing wall with radial piers. This "double stair" is/

is allowed to pass in the Royal Commission Inventory (RCAMS 1946) and by MacKie (1973), despite visits to the site. In actuality, the two stairs are segments of an interrupted ascent, as at Clickhimin, with the head of one linked to the foot of the other by a stretch of roughly-level gallery.

The breaking-through of the wheelhouse doorway from the outside at the first gallery level would imply either a build-up of material inside the broch before the wheelhouse was inserted, or else a semi-sunken quasi-earthhouse, nature for this structure, with an entrance high in one wall. The report of the excavation is obscure regarding the matter of the precise level of the wheelhouse floor, but it is interesting that Goudie clearly saw no contradiction between the blocking of the first flight of stairs by the facing wall and the contemporaneity of the internal features with the broch. That is, he seems to have regarded the stair as a purely structural device rather than as a mechanism for regular access to the wallhead. (Goudie, 1872).

Dryden's survey of Shetland brochs was the product of seventeen years' intermittent field work and was based largely upon the work at Mousa already described, and observations before and after the 1861-62 digging at Clickhimin. The internal features in contradiction to Goudie's results from Levenwick, were seen as later, especially at Clickhimin, and the original living space was held to have been the cells and galleries for "if the builders had timber and skill to floor and roof them, why did they spend so much labour in making thick walls and chambers in them?" To Dryden, brochs were residences first and defences second. Floors of the raised wooden variety advocated in Orkney (Anderson 1872) would not have allowed light to reach the ground floor, and the voids in the inner wall-face could not have functioned as windows were the structure roofed. Clearly, this view of the wall as living-space was directly in conflict with Anderson's view/

view of the galleries, cells and voids as purely structural, weight-reducing, devices to permit the raising of a high wall. A roof was objected to as it would block the wallhead if it covered the upper galleries, or would make the inner wall-face intolerably wet if resting upon the scarcement. A penthouse roof, sloping inwards was not considered, nor the annular, rather than solid, floor which would have allowed light to enter the interior.

Most of Dryden's comments were based solely upon Clickhimin and his descriptions of Mousa (including the 1861 repairs) and of ten other brochs (Burland, Burrafirth, Burraland, Burra Ness, Culswick, Dalsetter, Houbie, Sumburgh and Underhoull) were largely a list of measurements, all within five percent of more recently obtained figures (RCAMS, 1946 and field work data).

Although Goudie had noted a stone-faced wall around the broch at Levenwick (Goudie, 1872), Low a similar wall around Culswick (Low, 1774), and Dryden had described the wall and blockhouse at Clickhimin (Dryden, 1872), it was not until the "excavation" of the fort in Loch of Huxter, Whalsay, that any parallels were drawn between these sites. The Huxter site was observed as the loose rubble was removed to build a nearby school, revealing a "blockhouse" of similar plan to that at Clickhimin: "above the two existing chambers there seems to have been other (sic) two, forming a second tier, but no stair giving access to them remains." A faced wall of Levenwick type was built against, but not bonded into, the ends of the blockhouse (Mitchell, 1881).

Another non-broch defensive site was added to the list of published sites with the excavation of the islet in Loch of Brindister to reveal a wall some eight feet thick enclosing a circular area thirty four feet in diameter. An entrance was observed, but no other details were ascertained. (Goudie/

(Goudie, 1889).

Although the excavator described the site as a lightly built broch, it lacks both the specialised entrance and any evidence for hollow-walling, and has since been relegated to the status of an island dun.

The same account also described the excavation of a previously unrecognised broch at Clumlie, where a broch was found to stand some six feet tall below a rubble mound, with a later cist halfway down the central fill.

It is appropriate at this juncture to comment upon the general lack of artefacts in early Shetland broch excavations as compared with those in Orkney and Caithness. It is difficult to judge at this remove, but the impression even at this early date is that the material culture of Shetland brochs was recognised to be sparser and less diverse than that in other regions. However, the aims of the excavators may be relevant, as from the first, Shetland antiquarians exhibited a fascination with architectural detail often absent from their southern contemporaries, who were perhaps more prone to artefact-hunting. It remains an open question as to whether the attitudes of Shetland antiquarians were a result of, or a cause of, the lack of artefactual material reported from sites.

In 1890 Ackland, describing the broch on Holm of Copister, echoed the general climate of opinion of the period by raising the "important question of a complete and systematic record of the present condition of the brochs of the North." (Ackland, 1890, p.473). It was this movement away from indiscriminate excavation and towards recording and conservation which had recently led to the Ancient Monuments Act, and was soon to lead to the establishment of the Standing Royal Commission on Ancient Monuments, for Scotland. As ever/

ever, Shetland reflected in microcosm the general trend of Scottish antiquarian thought, although with its own distinctive character. In 1895 and 1896 two anonymous gentlemen were still arguing the case for and against the Scandinavian building of brochs, a subject abandoned in most areas of Scotland after Anderson's conclusive article of 1878. (Anon, 1895-6; Anderson 1878).

Goudie's "Celtic and Scandinavian Antiquities of Shetland" (1904) summarised his work, and marked a distinct change in emphasis. From the start of the twentieth century, excavation in Shetland has been directed towards answering specific questions, or at least justified by the posing of questions after the event.

In 1897 heavy storms had revealed masonry in the sand dunes beside the ruined Medieval farm of Jarlshof, at Sumburgh.

"Mr. E.M. Nelson, President of the Royal Microscopical Society, and Professor Gunther..... rambled about the shore; their attention was drawn to the jutting out ends of walls on the seaward side of the Mound, and soon their interest and enthusiasm led them to cast off their coats and begin excavating." Bruce, 1907, p.11.

The gentlemen were thwarted in their planned return but Bruce, a keen local antiquarian, proceeded alone, having first built a sea wall to prevent further erosion. A team of labourers followed the walls inward "slowly and carefully, neither displacing nor breaking built stones, and keeping a sharp look-out for objects of interest buried in the debris." (ibid, p.12).

The main interest of the results lay in the discovery of the wheelhouses to the west of the broch, and of the wall forming the courtyard around these. It was plain to Bruce that the wheelhouses, as well built as the broch itself/

itself, were of a wholly different class from the more usual "huts" found around brochs. The excavator clearly demonstrated that these structures were later than the broch and courtyard wall, a fact which Scott chose to ignore (Scott, 1947). The finds were not particularly plentiful, although some interesting artefacts were discovered (see chapters iii and vi), due to the true floor-levels not being reached: a fortunate chance for later excavators (Hamilton, 1956).

The first field work approach to Shetland's brochs was the 1911 essay by Stout, who amid some flowery description observed:

"It will generally be found that a broch was built near some spot easy of cultivation, and that the more barren the land, the fewer the brochs." Stout, 1911, p.107.

On function, even more pertinently:

"We know very little that is definite about the matter..... the people who built the brochs, which are the highest expression of drystone masonry that we have, must have been skilful, wary, intelligent and resourceful. Their domestic life must have been much like that of the Shetlanders before communication was set up with the south... in short, there must have taken place the same constant warfare against cold and hunger that has ever gone on in Shetland." *ibid*, p.131.

Of the two suggested reasons for defence, internecine strife and Norse raids, the latter was preferred, it being noted that a chain of brochs, within signalling distance of each other, stretched up the eastern side of the islands. This was actually inaccurate, as what seems to be a possibility on a small scale map is not in fact the case once/

once the heights of land are taken into account (see Section 2, chapter ii, below). The summary of material culture given in the same paper is very confusing, as it comprises items from all Scottish broch sites, not simply Shetland examples.

The only event for the next quarter century was the consolidation and restoration of Mousa consequent upon its becoming one of the first guardianship monuments. Dryden's plans and sections were corrected as a result of thorough architectural survey, and both interior and exterior were excavated with greater thoroughness. (Paterson, 1922).

The true entrance was revealed and the outer face, "restored" in 1861, returned to its original condition (although it may still have the outer lintels set too high). The external debris was moved, thus indirectly raising the effective height of the tower from forty one to forty three and a half feet. Traces of a rampart to the east, and "some outbuildings" were noted, and inside the broch the true floor levels of the cells were reached. At the head of the wall, the stones were bedded down, some damage having occurred since 1861.

The inner casing wall and its projections were shown to be secondary, and it was suggested that they had been roofed in stone, like the Jarlshof wheelhouses. The stair entrance six feet above ground level, at the first scarcement, and the presence of a widened void suggesting a doorway well above the second scarcement, were used to argue for three raised floor levels, plus the ground level, where a tank cut down to bedrock appeared to be original.

A/

A lull in activity preceded the commencement of the survey of monuments by the officers of the Royal Commission on Ancient Monuments (Scotland). This covered both Orkney and Shetland, and the field work was carried out between 1930 and 1936, but was held up publication for ten years (RCAMS, 1946).

During field work, the site at Ness of Burgi was identified as a possible blockhouse, fort, and excavations revealed that this was so, although the structure was on a much larger scale than either Huxter or Clickhimin (Mowbray, 1936).

A block of vertically faced masonry twenty feet broad, and surviving to seventy feet in length, stood to six feet high. A lintelled entrance passage, with door checks and bar hole, pierced this block, which contained three hollow cells, two on the west and one on the east. The eastern cell linked to the entrance passage in a manner recalling a guard cell, while at least one of the western cells was entered from the protected rear of the blockhouse.

The western cell (the better preserved of the two) produced a built hearth with considerable quantities of pottery of types C and A or D (slightly burnished) while the eastern cell had no hearth and but a little pottery.

A double ditch and rampart on the landward side were assumed to be contemporary.

The publication of the RCAMS Inventory (1946), as volume III of the Orkney and Shetland set, gave the first reasonably even cover of archaeological observations which Shetland had received. The discussion of brochs, in volume I, takes place in terms which are essentially similar to those of the Inventory of Skye and the Outer Hebrides (RCAMS, 1928).

Despite/

Despite the comment: "Brochs bulk so largely in the archaeology of the northern counties that the local Iron Age has come to be associated with their name", the report proceeds to fall into the error it warns against, assigning every possible broch site to the class regardless of detail. Thus Stoal, at Aywick, Yell, is described as the site of a now vanished broch, without there being the slightest evidence of a circular structure. For some reason the recognised forts at Ness of Burgi, Burgi Geos and South Haven (Landberg, Fair Isle) did not suggest the possibility of multivallation without a broch within the ramparts, a misconception not corrected for twenty years or more (Lamb, 1972). The result was an over-estimate of the numbers of brochs, aggravated by the persistent classification of sites which in the west would have been "ruinous island duns" as "ruinous, lightly-built brochs", simply because duns were held not to occur in Shetland, despite the evidence from Loch of Brindister (Goudie, 1889).

With figures of 51 certain, 14 probable and 30 possible brochs, the report comes closer than any list before or since (excepting the excellent, unpublished, Ordnance Survey, Archaeology Division records) to defining the number in Shetland. The differences between the Commission and the author are set out in the entries of Appendix One. In summary, the report errs on the side of over credulity, under observation (especially with increasing distance from Lerwick!) and too rigid a typology.

The northern peculiarities of brochs were noted solid based rather than ground galleried, artificial defences more frequent, and fewer sites on inaccessible natural eminences, this latter a function of geomorphology rather than of archaeology. Despite the apparently pre-broch blockhouses, the 1928 evolutionary scheme was maintained, with "a typological sequence of galleried structures of which the broch is the most elaborate form." However, the/

the emphasis had moved from the evolutionary (RCAMS, 1928) to the formal (RCAMS, 1946) and the Commission appeared less willing to support the unavoidable chronological implications of this typology.

The chief failings of the Inventory are the lack of plans (seventeen of fifty one "definite" brochs are planned, most plans being derivative) and the absence of any real consideration of location. The latter is a result of the terms of reference, the former of the shortage of field staff.

The contributors to the Viking Congress in Lerwick in 1950 were able to discuss the brochs in more detail due to the new Inventory, as by this date all of the main broch areas, except the Argyll islands, had been covered (RCAMS 1911a, 1911b, 1928, 1946).

Simpson discussed the Clickhimin sequence as it could be deduced from field work, and the result was precisely the same as that eventually published by Hamilton after the excavations (Simpson, 1954; Hamilton, 1968). The other papers given at the Conference, notably those by Graham and O'Neill, are more general than specifically concerned with Shetland, and have been discussed above (chapter ii).

The guidebook to Clickhimin (Cruden 1951) emphasises the fact that the pre-broch defences at the site are strong evidence that the idea of fortification was not introduced to Shetland by the broch builders, and the brochs were set in context as the final expression of a rather earlier influx of defence building Iron Age peoples. While not explicitly stated, the concept of a semi-independent genesis of the broch, in the Northern Isles, is clearly favoured.

By/

By this date, Hamilton was already working at Jarlshof, but the publication took some years, and was overtaken by Calder's account of the partial excavation of a broch on the top of Sae Breck in Esharness, which yielded pottery similar to that from Jarlshof (types A, B and B/C. C was not represented). The site gave no evidence for later occupation, and had been torn down in antiquity, probably for stone to build Cross Kirk at the foot of the hill (Calder, 1953).

The major landmark of the publication of half a century's digging at Jarlshof has already been noted in its wider context (chapters ii and iii), and it is sufficient here to remark that for the first time in Shetland (and Scotland) a sequence of pre and post broch structures had been established, relatively unequivocally. The main disadvantage of the sequence for Shetland broch studies is the lack of any pre-broch settlement clearly belonging to the period immediately prior to the building of the broch, when a series of sandblows covered the remains of earlier structures (Hamilton, 1956).

A considerable quantity of pottery and other artefactual debris was discovered, and was used to put forward a picture of the immigration of small warrior groups at three junctures: Early Iron Age, immediately pre-broch, and immediately pre-wheelhouse. This sequence has been discussed in chapter iii, and the material will be discussed in chapter vi, following.

To fill in the gap which obscured the immediate ancestry of the broch (the suggestion that Ness of Burgi fort was built at this time could not be proved) Hamilton turned to the by now well known site of Clickhimin, where excavations took place from 1953 to 1957. The results (Hamilton /

(Hamilton, 1962 and 1968) have been discussed, with Jarlshof, in chapters ii and iii, and the material remains are dealt with in chapter vi. Basically, the sequence Hamilton published was that suggested by Simpson's appraisal of the site prior to excavation (Simpson, 1954), with one phase of peaceful, and two phases of fortified, Iron Age occupation preceding the broch. However, grave doubts have been raised over the sequence, on the grounds of inadequacy of evidence (see chapter iii above, and MacKie, 1965). It would be unfair to conclude that the Clickhimin sequence proved what the excavator wished to prove, but the strength of the conclusions reached far outweigh the evidence.

Nevertheless, the second report now gave Shetland both of the completely excavated broch sites in Scotland. The Clickhimin sequence was accepted as the standard reference-scale for the development of different features of the Northern Iron Age, although it lacked absolute dating. The implications of a reassessment are widespread, but this seems necessary.

While appreciating the importance of the results from the excavations, it remains difficult to understand why Clickhimin was chosen for investigation, as the avowed aim was to ascertain whether it was "possible that the heavy defences which surrounded many Shetland brochs belonged to this (that is, the pre-broch) early period. Yet Clickhimin was known to be possessed of a stone-faced ring-wall of greater dimensions than any other known faced surrounding wall, and in any case the defences of most Shetland brochs were known to be simple earthen ramparts.

This aside, the succession established for the Shetland Iron Age by these excavations was:

Early/

Early Immigration

Fort-building, plus blockhouses

Broch-building

Wheelhouse-building

Each phase of architectural innovation was held to mark the arrival of immigrant groups which assumed social superiority. Evidence for such immigrations was sought, and found, in the artefactual assemblages (see next chapter).

Since the publication of the Clickhimin report (Hamilton, 1968) only one further broch has been investigated, the newly-discovered example at Virkie. Here the lower portion of a broch was discovered during road extension, and a salvage operation was aimed at consolidating the site for future excavation. Thus the major part of the site is undisturbed, although some erosion was observed to be taking place in 1979.

The study of the Iron Age in Shetland has become marked by a growing awareness that there is extensive evidence for non-broch occupation. This has been largely due to the work of the Shetland Antiquarian and Natural History Society, whose sites and monuments record has listed sites of two types: oval houses and promontory fortifications.

The oval house foundations which are so typical of Shetland's remoter areas were originally assigned to the later Neolithic (Calder, 1956). More recent work has in part confirmed this impression (Whittle, 1979), but it is now clear that the type is extremely long-lived, and excavations on West Burra and at Mavis Grind (Hedges, pers. comm.) have demonstrated Iron Age use of such houses, to strengthen/



Recent discovery : Over two metres of blown sand and earth overlie Pool of Virkie broch, discovered while cutting a new access road to the airport.

strengthen the evidence of Wiltrow (Curle, 1936). Although the majority of such houses are undated, some at least may continue into use up to the broch-building phase. Oval house foundations have produced pottery of broch or wheelhouse type in Unst, where the sites of Clugan, Underhoull, Sandwick, and Mula are the best documented. At Sandwick and Underhoull, occupation on the same sites continued into the Norse period (Bigelow, 1979; Small, 1966). Many midden sites have produced pottery comparable with that from the brochs, since the first publication of such material from Hillswick (Coughtrey, 1872).

Promontory fortifications have long been known in Shetland, although their total number has been obscured by the predilection of the Royal Commission for identifying such monuments as the sites of brochs, often without any trace or likelihood of appropriate remains (RCAMS, 1946). Recent work by Lamb (1972) has resulted in the recognition of a series of defensive sites formed by the cutting off of promontories (usually cliffed) by ramparts either akin to the Clickhimin ringwall or of simple earthen formation. Fifteen such sites are known (SANHS records), and at least six promontory-located brochs may in fact be built within such defences.

The correct dating for these sites, if indeed they are contemporary, has yet to be established. Pottery found on several sites has not been distinctive enough to allow firm conclusions. Lamb (1972) would place these simple defences into a pre-broch context, pointing to the association of simple rampart and blockhouse at Ness of Burgi and Burgi Geos. However, it is not yet clear that blockhouses pre-date brochs, and a number of brochs also have simple external defences.

The/

The existence of these forts, together with the possibility that some of the island brochs may in fact be more akin to lightly-built duns (Goudie, 1888), leaves open the potential for pre-broch defensive settlement on a considerable scale. Dating evidence will be required.

In the last few years, attempts have begun to study brochs in their context as functional entities, through analysis of their location. Winham (1978) has undertaken a sampling approach directed at obtaining a cross-section of change in environmental requirements over time. An exhaustive survey of broch sites aimed at assessment of locational requirements and economic reconstruction forms the second Section of the present study.

This summary of the development of Shetland broch studies is intended to serve as a supplement to chapter ii, by filling in detail concerning the role played by Shetland, both in broch studies, and in the various hypotheses proposed by researchers.

In general, it can be observed that most commentators are agreed upon several counts:

- 1) Shetland's brochs are generally more massively built, and typologically "more sophisticated" than any other regional group (MacKie, 1971).
- 2) The broch idea reached Shetland from Orkney, probably together with direct immigration of broch builders (Hamilton, 1968).
- 3) The Shetland blockhouses pre-date brochs (MacKie, 1965; Hamilton, 1968; Lamb, 1972).

The field work undertaken in 1977, 1978 and 1979 has led to a re-assessment of these points, particularly the semi-contradictory 2) and 3).

Rather/

Rather than present these new suggestions in isolation, it is better to include them as part of a comprehensive re-evaluation of the evidence concerning the Shetland Iron Age during that portion of its span when brochs were built. The remainder of this Section comprises two interlinked studies. The first is of the artefactual assemblages available to study and their significance (if any) in terms of cultural links and economic situations, while the second extends the seminal work of Graham (1947) and MacKie (1973) into a detailed analysis of the elements of Shetland's broch architecture.

A short final summary will assess the change in Shetland's position vis-a-vis Scotland resultant upon these re-assessments, and suggest ways in which the conclusions of such detailed studies may be verified, or at least tested, and propose potentially profitable directions for future work.

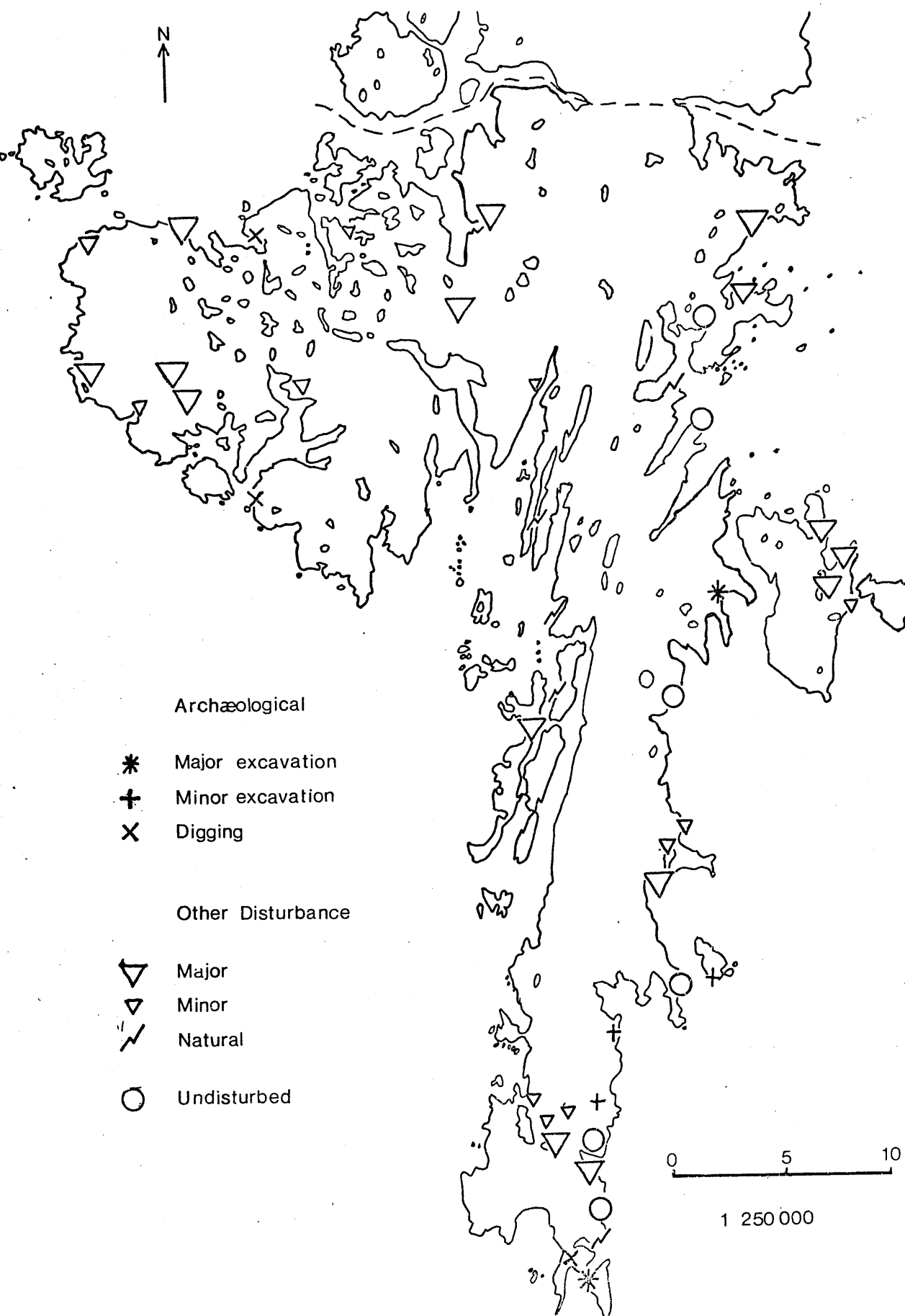
MAP 1



- Archæological
- * Major excavation
 - + Minor excavation
 - X Digging
- Other Disturbance
- ▽ Major
 - ▽ Minor
 - ~ Natural
 - Undisturbed

0 5 10 km

1 250 000



X Digging

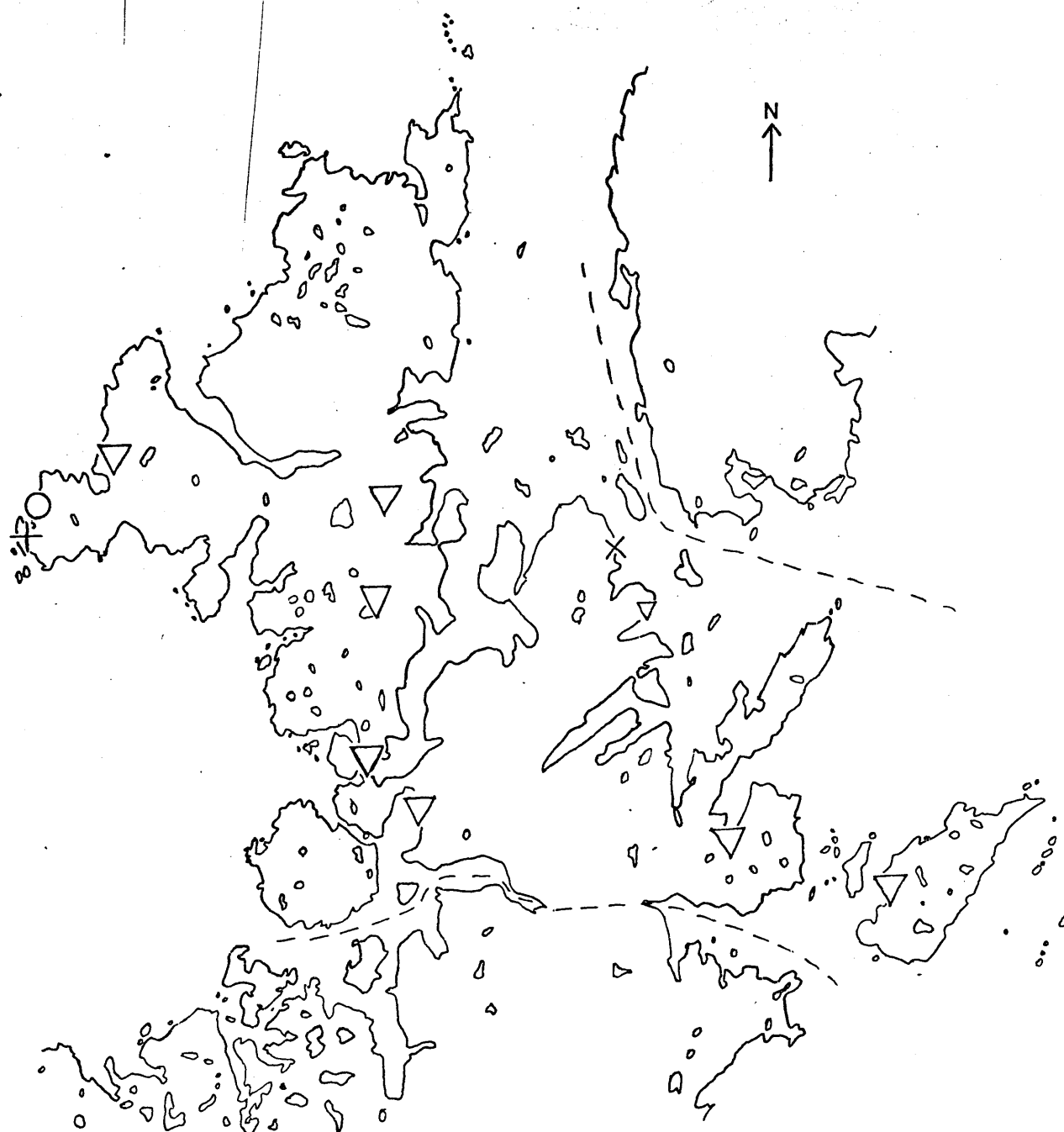
+ Minor excavation

MAP 2

▽ Major disturbance

▽ Minor "

○ Undisturbed



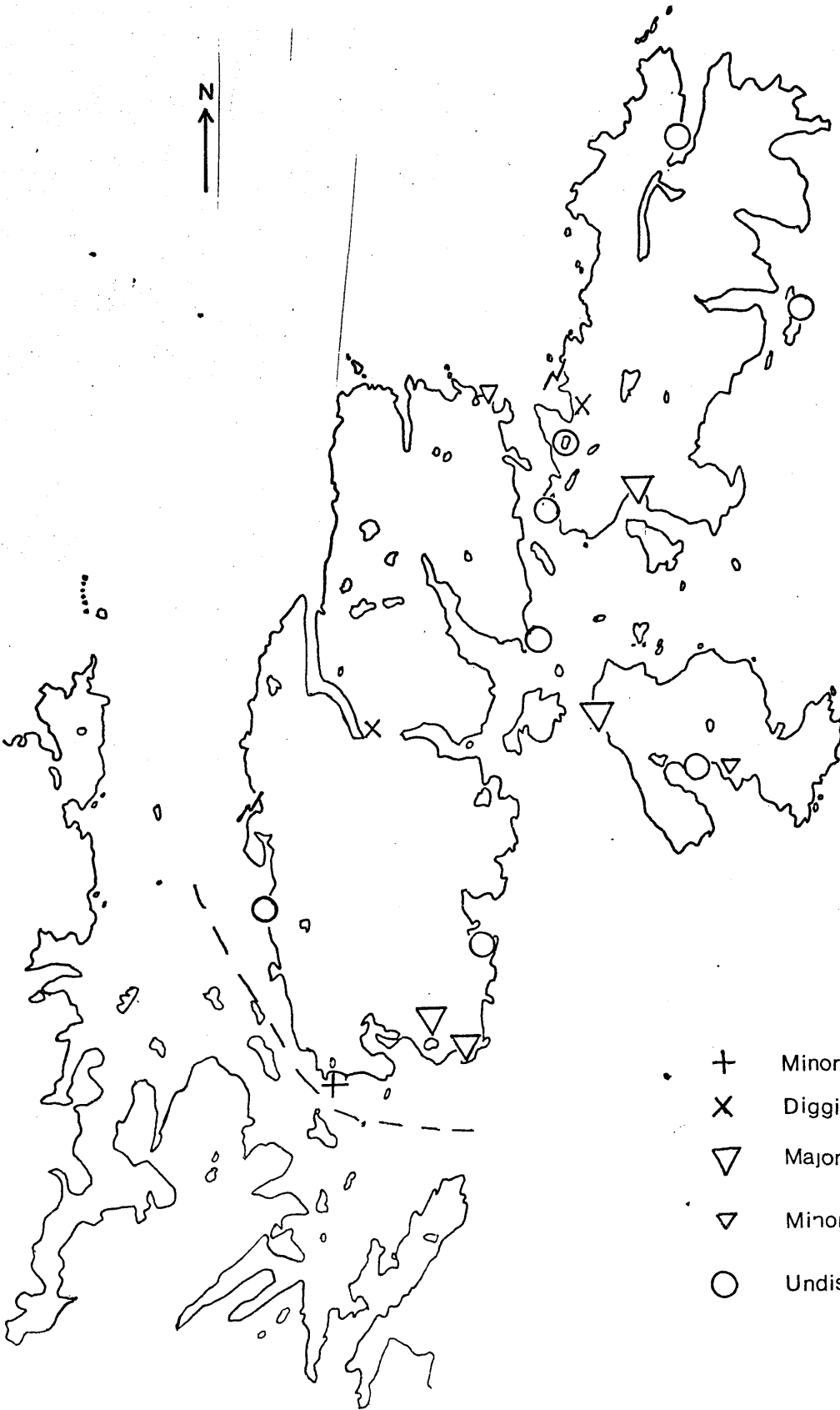
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1:250 000

MAP 3

0 5 10 km

N
↑



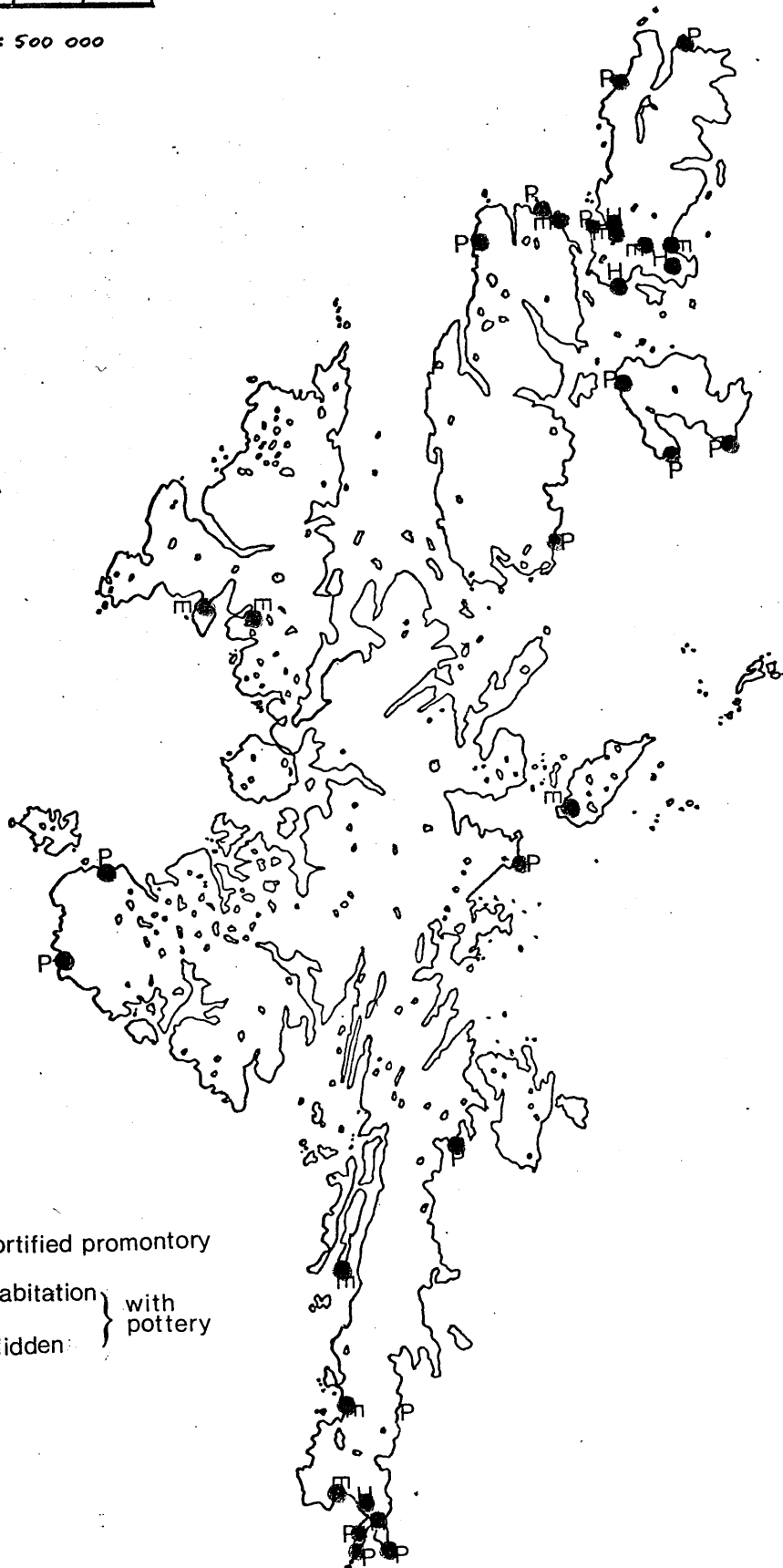
- + Minor excavation
- X Digging
- ▽ Major disturbance
- ▽ Minor "
- Undisturbed

0 5 10 15 km

1 : 500 000



- P Fortified promontory
H Habitation
m Midden
- } with pottery



NON-BROCH SITES
OF
IRON AGE DATE

CHAPTER VI

The Material Culture associated with Shetland Brochs

Shetland brochs have been less excavated and otherwise disturbed than any other regional group, with the possible exception of those of the Western Isles. Only three, Jarlshof, Clickhimin and Sae Breck, have been excavated with reasonable competence, and a further three, Levenwick, Houbie and Virkie, with less skill than enthusiasm. Two forts, Ness of Burgi and Loch of Huxter, have been examined in a like manner, and another dozen brochs have been "investigated with the spade" to some degree. The material from all of these sites, plus many stray finds of pottery, is housed either in the Lerwick Museum (especially recent material) or the National Museum of Antiquities, in Edinburgh. A further small body of uncontexted material is disseminated among the interested individuals of Shetland. This is gradually being gathered into the Lerwick collection by a process of persuasion and negotiation.

Because of the low number of excavations of any standard, the sum total of material from brochs is lower than for most areas of the broch province. Whether or not this reflects a real poverty is doubtful, although field work certainly does not produce as many surface sherds as in Orkney or Caithness. Most material is unstratified, but this is general in Scotland: in June 1979 there were no securely-stratified broch-finds in an extensive display of broch period material in the National Museum. The results of this have already been observed (chapter iii), and will be noticed again; the answers to many questions of development and spread of cultural groups must lie in this material, but in the absence of context, the artefactual assemblages can be used to support alternative, conflicting hypotheses.

Since/

Since the division between ceramic and non-ceramic evidence is traditional, it will be used here. However it must be noted that small, valuable, artefacts, such as personal decorations, may well travel far beyond their cultural originators, while pottery or stoneworking styles are much less likely to "move" independently of people. However, the simpler an artefact in its conception, and the more functional, the more likely it is that the artefact-type may have developed locally in response to a specific need. This possibility must be borne in mind throughout any study of artefactual parallels.

Pottery (Diagrams 1,vi,1; 1,vi,2; 1,vi,3)

Ceramic material can be classified on the basis of form or of fabric. Fortunately, the two coincide for most of the Iron Age pottery of Shetland, and is therefore unnecessary to use two separate systems. Five classes of pottery can be identified, each readily distinguishable in the hand specimen, given a portion including a rim.

Type A: The fabric of this type is fine gritted, and normally grey to buff or fawn in colour, although it may occasionally be darker. Little or no steatite is present, and the pottery is normally relatively hard-fired, thin, and brittle. This is Hamilton's Class III ware (Hamilton, 1956).

Forms are generally buckets, usually straight-rimmed though with frequent rolled or flat rims, and situlate in form, with high shoulders occasionally carinated.

Vessels/

Vessels may be up to 40 centimetres in diameter, but are usually somewhat smaller, and are normally slightly taller than wide, by a factor of 20 to 30 percent. Decoration is normally absent.

This class, which occurs on at least nineteen Shetland sites, is the most widely recorded type of pottery in the Shetland Iron Age. It represents the Shetland version of a series of coarser wares found up the eastern seaboard of Britain, broadly comparable with material from the Moray Firth promontory forts (Ralston, 1980). However, the place of the very coarse expressions of this tradition is taken, in Shetland, by the next class of pottery.

Type B: This is coarser in texture and proportions, grey to dark brown or black, and characterised by use of steatite as a backing, in such quantities as to render sherds "greasy" to the touch. It totally lacks the occasional external oxidation of Type A, and is much more friable. This is Hamilton's type I (Hamilton, 1956).

In form there are similarities to A, but with carination rare, and rims more frequently flat or rounded than straight or rolled. Shoulders tend to be less pronounced, with a more bucket shaped profile which tends to be squatter than A, with diameter roughly equal to height. Overall sizes reach similar dimensions to A, but there are fewer small vessels.

Whereas some case might be made for Early Iron Age importation of A forms, the B forms are very close to the "aboriginal" styles of Ness of Gruting (Calder, 1956) and Brouster (Whittle, 1979). Together, types A and B would form a complete range from coarsest to fine wares, with B dominating coarse ware and A fine ware. It may be significant that B is more frequently soot-blackened than A/
A/

A, suggesting a more utilitarian function.

Type B/C: This type does not have a particularly distinctive fabric, being typically composed of a finer version of the B steatite-backed fabric, with the grit more finely ground, and a thinner section, although C fabrics occur.

In form, the pottery represents the most basic version of the everted rim style in Shetland. High-shouldered or carinated jars with sharply everted rims are typical, with slightly footed bases. The inside of rims may be fluted, either horizontally or, more commonly, diagonally. Cordons or other decorative motifs are absent.

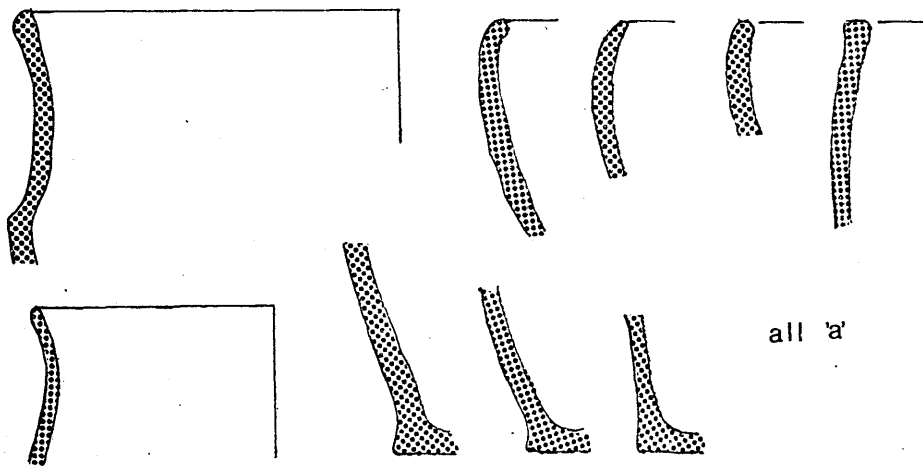
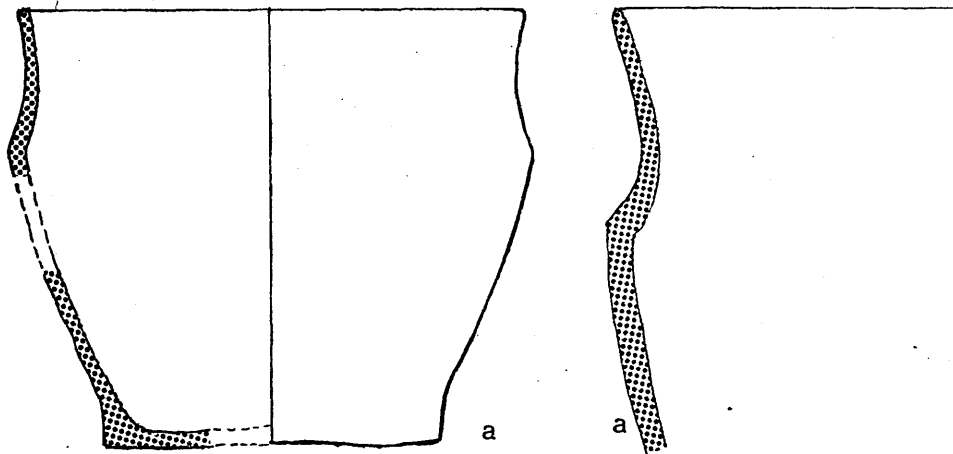
Outside Shetland, the style (but not the fabric) finds close parallels in some of the material from the earlier phases of Dun Mor Vaul, Tiree. (MacKie, 1974).

Type C: This, Hamilton's Type II, is a fine to medium gritted, hard fired, red brown ware, of a type not found in Shetland prior to the brochs. Vessels are mainly globular jars, with sharply everted rims and may be slightly footed. Characteristically, decoration is by means of a single or double impressed cordon at the neck, hence the common term "neckband ware". In addition, the type is occasionally decorated by the incision of geometric patterns, a trait which seems to appear late in the life of the form, perhaps well into the wheelhouse phase.

Outside Shetland, there are good close parallels in Orkney amongst unstratified material from the brochs around Scapa Flow.

Type D: This is commonly termed "black burnished ware" but must be distinguished from the wheel-thrown Romano-British material with the same name. The fabric is essentially a dark version of A, with a little steatite present. It is hard fired and may be burnished externally and (more rarely) internally.

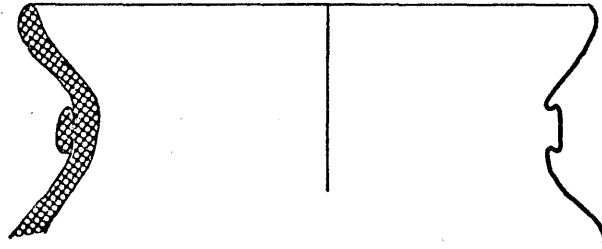
Small/



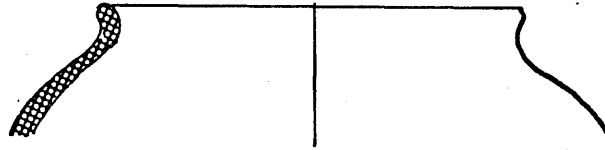
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0 5 10 cm

FORMS , TYPES A & B



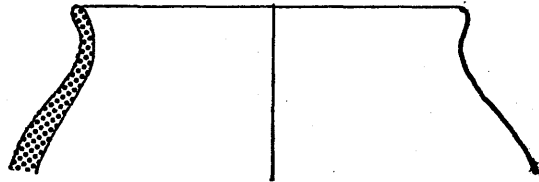
c



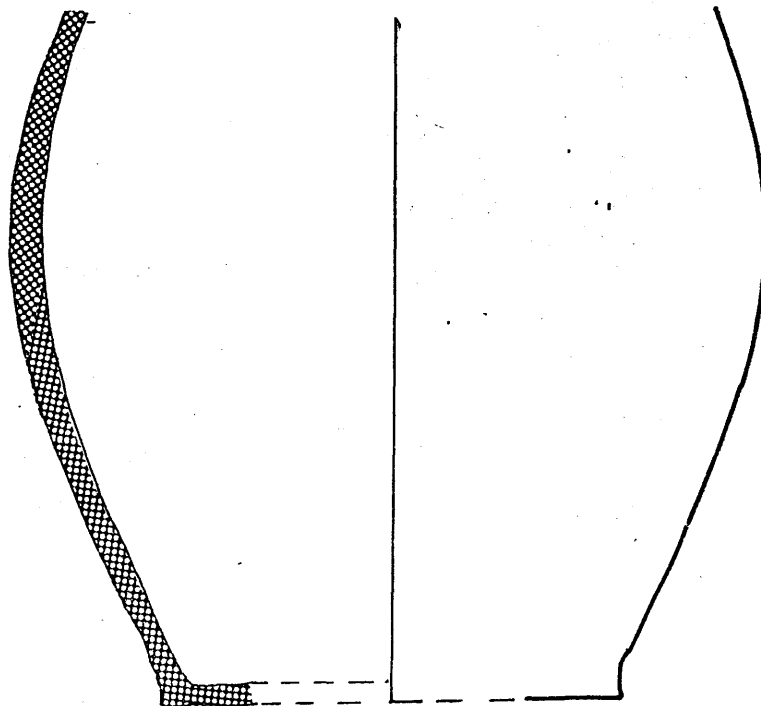
b/c

 $\frac{1}{4}$

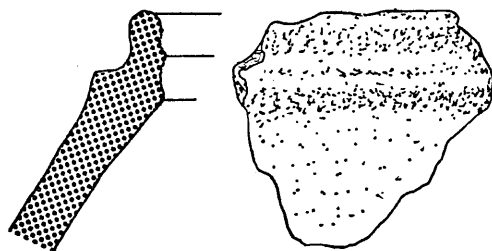
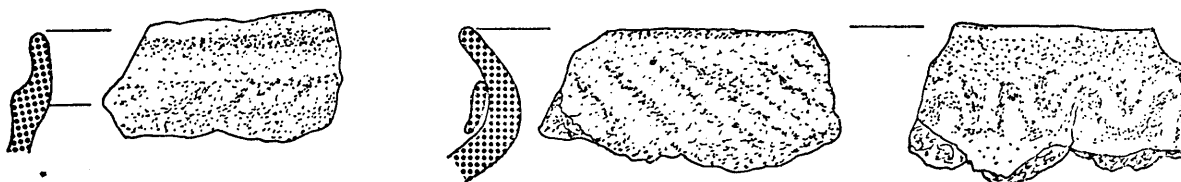
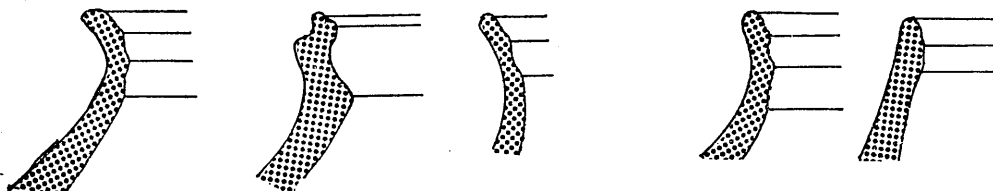
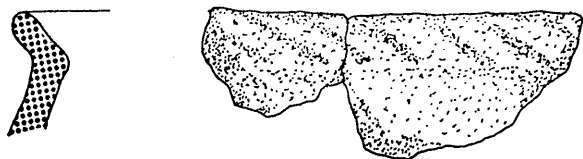
0 5 10 cm



b/c

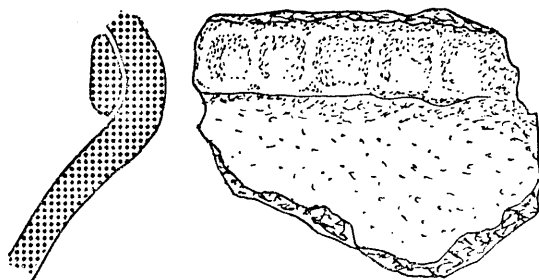
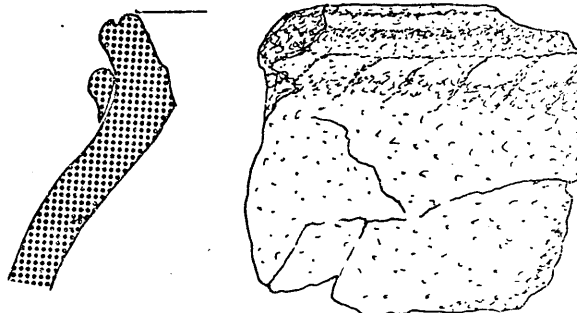
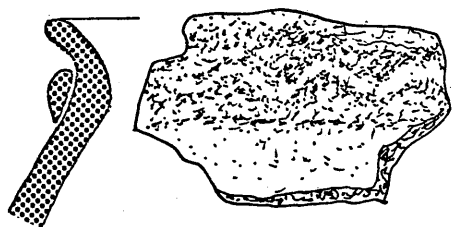


c



DECORATION & RIMS ,
TYPE B/C

$\frac{1}{2}$ 0 5 10 cm



DECORATION & RIMS ,
TYPE C

Small globular jars with slightly everted rims are the only form recognised, and may not appear until the wheelhouse phase. There are no nearby parallels and this fine ware may indeed represent a true local copying of the southern black-burnished ware, sensu strictu.

A small number of hybrid forms occur in the later layers at Clickhimin and Jarlshof, the commonest being type C forms in type A fabrics and more rarely in B/C fabrics.

Sequences involving several types of pottery are only available from Sae Breck (Calder, 1953), Jarlshof (Hamilton, 1956) and Clickhimin (Hamilton, 1968). These latter sites have been discussed critically above. As stated by Hamilton, the Jarlshof sequence is:

LBA/EIA houses		B			
Broch		B		C	
Roundhouse		B			
Wheelhouse	A	B		C	D B/C
Pictish	A	B			
Norse	A	B			

(Hamilton, 1956, modified to new classification).

The Clickhimin sequence, as stated by Hamilton, is:

LBA farmstead		B			
IA farmstead	A	B			
Fort (ringwall)	A	B		B/C	
Fort (ringwork)	A	B		B/C	
Broch	A	B		B/C	C
Wheelhouse	A	B			C D?

(Hamilton/

(Hamilton, 1968, modified to new classification).

In the light of the discussions of chapter iii, the sequence at Jarlshof requires slight modification only, the removal of type C from the broch phase, being the only change to the pottery. At Clickhimin a more drastic re-interpretation is necessary:

EIA farmstead	A	B			
Ringwall and apron	A	B	B/C		
Broch and blockhouse	A	B	B/C		
Wheelhouse	A	B	B/C?	C	D?

The "Orkney" neckband sherd at Jarlshof certainly cannot bear the weight of Hamilton's arguments for a group of immigrants arriving from Scapa Flow, while at Clickhimin the neck-band ware proper does not occur until the wheelhouse phase, all of the earlier everted fluted rim pottery being of the local B/C fabric, not the distinctive red-brown of C, and lacking the neck-cordon. (See chapter iii for sequence).

The presence of fluted rim pottery in the west was used by Hamilton to provide evidence for an immigration along the western seaboard, despite the fact that it only occurred in wheelhouse-type structures in the west. Dun Mor Vaul was the first western broch site to produce such pottery, and here it occurred relatively late in the sequence (MacKie, 1974). Hamilton (1968) seems to have ignored the associations of the western fluted rim pottery. If such forms do appear with the fort at Clickhimin, then a purely western origin for the broch-builders becomes less likely.

It may be of considerable significance that the Sae Breck site, where there is no evidence for wheelhouse type structures, produced everted rim pottery of B/C form and B/C and C fabrics, but that none of this pottery bore neck-cordons. This supports the suggestion that B/C forms appear before C forms (Calder, 1953).

In/

In view of the lack of firm stratigraphy, caution must be exercised in the handling of evidence from Shetland sites. However, certain broad generalisations are possible.

Type A seems to appear in the early Iron Age, before the brochs.

Type B is the native style of coarse ware and is current from Neolithic to Norse periods.

Type B/C may appear immediately prior to the first building of fortifications, but the fabric is local in origin.

Type C does not appear until after the first building of brochs, and gradually becomes more decorated through the wheelhouse phase.

Type D, also, is probably of wheelhouse date.

Thus the main inputs of new fabric and style are at the start of the Iron Age, and at the start of the wheelhouse-building phase, with a minor stylistic input at the stage of first fortification. This contrasts with the earlier view of minor early influence followed by major fort-building followed by "broch-building" pottery changes.

In their wider context in the Shetland Iron Age, the various types of pottery are of varied usefulness. A and B seem too ubiquitous and long-lived to be of any use, as temporal indicators, although the occurrence of A types should suggest an Iron Age, or later, date. Type B/C is not known to occur elsewhere than on broch sites. Type D is too rare to permit of any generalisations, occurring only at Jarlshof, Clickhimin and Burland. Type C, the "neckband ware" must bear the main weight of inferential dating. As well as the dubiously stratified sherd at Jarlshof, and its later occurrence there, and the Clickhimin material, it was found at Ness of Burgi blockhouse (and now at Garth fort), and at Skelberry and Infield brochs, and in domestic sites at Underhoull, Clugan and Mailand on Unst and Olnesfirth on the North Mainland.

The/

The linking of Class C to Orkney was made by Hamilton (1956), although almost all of such pottery from Orkney had incised decoration. The Clickhimin excavations produced such decorated pottery, but this was late in the sequence. Small found incised decorated neckband ware at Underhoull (Small, 1966).

At both forts, C ware is associated with A and B, while at Jarlshof and Clickhimin, it seems to be of wheelhouse date. At Skelberry, Infield, Olnesfirth, Clugan and Mailand there was no dating evidence, while at Underhoull the appropriate phase of the site was dated as "broch period" because of the prevailing view that such pottery was of the broch-building phase. This view has never been conclusively demonstrated to be correct, and it seems rather more than probable that type C pottery does not appear in Shetland until the end of the broch phase, when brochs are being abandoned and wheelhouse-type structures inserted into and erected outside, brochs.

In Orkney, there are no stratified finds of this type, the nearest approach being the appearance of similar pottery high in the sequence at Burrian, North Ronaldsay (Macgregor 1974). Occurrences at Ayre and Lingrow are unstratified, but it may be noted that the type has never occurred at a broch site without any trace of later settlement.

Turning to the broader aspects of the Iron Age in Northern Scotland, it can be seen that the A-B group has parallels throughout the North, with coarser wares such as Dunagoil taking the place of the steatite-gritted B coarse wares, and A forms and fabrics effectively ubiquitous.

The B/C fluted rim style has parallels in the Western Isles (MacKie, 1974), where it appears at the start of the broch-building phase at Dun Mor Vaul. Its position in the west/

west as ancestor to the Clettraval series is less certain as everted rim ware with fluting and the "Wessex bowl" the ancestral forms from which MacKie (1971) derived the Clettraval forms, are not stratigraphically recorded before the Vault finds: that is, the ancestors appear later than the descendant. In Shetland, the style is in use by the time of broch-building, and probably by the preceding fort phase at Clickhimin. This would tend to suggest that Clickhimin's broch may be slightly later than Dun Mor Vault.

However, in view of the extreme paucity of stratified sequences in any part of the broch province, and of the tenuous links afforded by forms which are effectively ubiquitous to the Northern British Iron Age, it will require much more detailed analysis of pottery assemblages before the ceramic sequences can be extended beyond their present closely bounded regional validity.

The only pottery styles with close nearby parallels are the incised-decorated, impressed-cordoned forms of type C, which occur in Orkney. Only recorded from sites with post-broch occupation, these probably indicate local contacts after the defensive use of at least most brochs had ended. The parallels with the later Clettraval forms of the West are interesting, but in the absence of conclusive dating such long distance contacts remain hypothetical, and have been dealt with in this context in chapter iii.

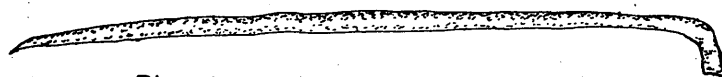
The local social implications inferred by Hamilton on the basis of pottery fabrics, involving C-using lords and B-using slaves, have been discussed (and rejected) in chapter ii also.



Beads (yellow)

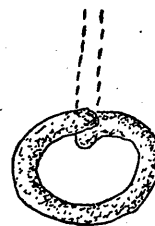
GLASS

BRONZE

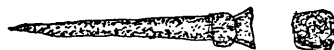


Pin shaft

Finger-
ring



Pin-head
(ring)



Pin

Needle ?



Bracelet
(fragment)



Pin-head

At Clickhimin there is evidence only for bronze-working, with fragments of crucible and a concentration of small objects in the temporary hearth levels outside the broch, dated by Hamilton (1968) to pre-broch, but more probably of post-broch, building activity. The objects are: two spiral finger rings, fragments of two ring-headed pins, of plain wire type, a putative fish-gorge and the head and shaft of a small thistle-headed pin. All of these are of long currency, and the only datable find was a portion of a beaded ring or bracelet, with decorative style attributed by Stevenson (1955) to the third century A.D. Diagram 1, vi, 4.

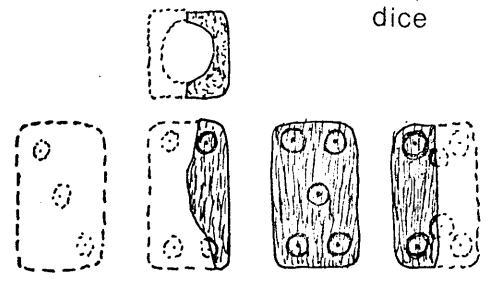
Wire finger-rings are quite ubiquitous broch-finds, and also occur on many other Iron Age sites throughout Britain. They do not seem to be diagnostic of any particular group, and being easily made are most probably of local manufacture. Similarly the basic wire ring-headed pin is of very long-lived and widespread occurrence. Such pins are recorded from many broch and post-broch sites in Orkney, Caithness and the West.

As detailed in chapter iii, the dating of the context of these finds is open to grave doubt. Certainly some of the material could occur in pre-broch levels, but is equally likely to be later, while the only closely-datable type seems to be of later date. This, together with the pottery finds, would tend to support the reinterpretation of the context, and therefore these bronzes, as immediately pre-wheelhouse.

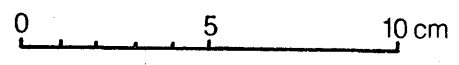
But in general the metal artefacts are too widely spread in space and time to be of any use as cultural indicators (Clarke, 1970).

A/

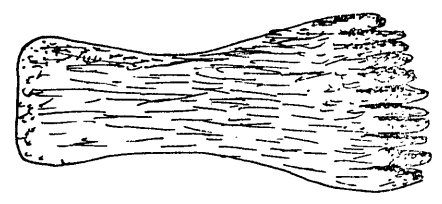
Parallelopiped
dice



$\frac{1}{2}$



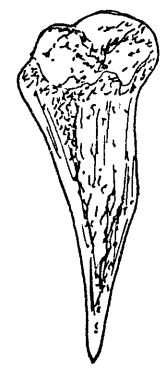
"Weaving" combs



Chisel

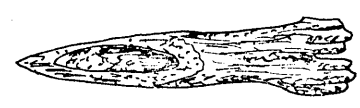


Toggle



Point

WORKED
BONE



Awls



A mention must be made of two groups of finds which indicate metal. A large number of hones have been recovered from broch sites in Shetland. These are generally small, and probably represent knife-sharpeners, probably for iron knives. A few are grooved by use as point-sharpeners. These provide strong circumstantial evidence for the widespread use of metal by the time of the brochs. A second piece of indirect evidence is the group of flat bone plates, drilled with rivet-holes, from Clickhimin, interpreted as handle-plates from iron saws and heavy knives. These occur in the same problematical context as the bronze objects discussed above, and may therefore be of rather later date, but certainly support the idea that iron was available in quantity by the later phases of the broch-wheelhouse transition.

Worked Bone (Appendix 2, Table 43)

Once again, only Clickhimin has produced any quantity of worked bone, firmly associated with a broch, although Jarlshof seems to have produced more that is anywhere preserved recorded or published.

Most of the Clickhimin artefacts are utilitarian in the extreme, and stylistically undistinguished, including ? and heavier points, and chisels. A few types are slightly more distinctivte. A series of simple wedge-ended pegs of various sizes was recovered, of unknown purpose, but perhaps associated with stretching animal skins. Flat-headed, simple, pins were numerous. Bone and antler handle-plates, presumably from metal bladed tools, and a whalebone cup, are similarly widespread in time and culture in the northern Atlantic areas of Scotland. Diagram 1, vi, 5.

The/

The only possible indicators of cultural contacts in the bone assemblage are the parallelopiped bone dice (on which see MacKie, 1971, contra Clarke, 1970) and the spatulate "weaving combs". The latter are recorded from both Jarlshof (unstratified) and Clickhimin, and also from a non-broch site, the midden deposit at Hillswick (Coughtrey, 1872). The dice are limited in their Scottish distribution to a few sites in the west and north, all of later Iron Age date, apart from the rather vaguely dated Dunagoil example. In every case except Clickhimin the dice seem to be associated with post-broch activity, and the weaving combs, similarly are all either later or occur unstratified from sites with later structures. Again, the dice and the comb from Clickhimin occur in Panel 17, the problematic temporary hearth spread, and this may well be of early wheelhouse date.

If the Clickhimin sequence as published is accepted, then the site provides the earliest specimens of dice and weaving combs in Scotland, and the only examples of such artefacts associated with broch-construction levels; if the revised stratigraphy is accepted, then both types fall into place as everywhere of post-broch period.

As Clarke (pers. comm.) has observed, any map of bone artefacts in Scotland is quite as much a map of good preservation sites as of true artefact distribution.

Wood (Appendix 2, Table 44)

Fragments of wood are recorded from Clickhimin, Jarlshof and Levenwick.

At Clickhimin chippings of pine, including a five-needed variety, spruce, elder and willow occurred in a level attributed to the immediate pre-broch phase, and were interpreted as evidence of re-shaping of timbers from the ranges/

ranges for use in the broch then under construction. Although the dating of these levels has been modified above, the general interpretation remains the same. A series of wooden pegs were found at the same site, and may have been used in carpentry, or as suggested for the bone pegs, in preparation of animal hides.

The Jarlshof wood consisted of fragments of unburnt spruce and willow amongst charcoal in the hearth on the floor of the outer courtyard, pre-dating the wheelhouse and probably of broch period.

Chippings of spruce and alder were recovered from the basal levels at Levenwick, although here the identification was not made by trained botanists, as at Jarlshof and Clickhimin.

The use of driftwood is evidenced by teredo-boring of a large fragment from Clickhimin and would be consistent with the occurrence of the unusual form of pine, which probably represents a species from New England or Maritime Canada, although generally the North Atlantic drift might be expected to bring material from further south in North America.

However, the abundance of spruce relative to other woods is problematical. So far as is known, spruce is not native to Britain. Further, it is very difficult to confuse spruce with other woods, except for larch, which is known to be a deliberate seventeenth century introduction into this country. Spruce occurs in Scandinavia and North America. If all of the Shetland brochs had substantial timber structures then a considerable amount of timber would be required, probably more than could be obtained from driftwood, unless the natives habitually stored this against future need. In further criticism of the driftwood source, it may be suggested that it/

it is very unlikely that spruce alone would reach Shetland yet there are no records of other appropriate trees in any quantity, only the single fragment of pine from Clickhimin.

The alternative would be a deliberate selection of spruce and importation of this timber from Scandinavia, where it is common but by no means ubiquitous by Iron Age times. This was certainly done by Norse times, but this would be readily explained by the origins of the Norse settlement. There is so far no evidence for any pre-Norse contact between Northern Scotland and Scandinavia, so the mechanisms of this trade would have no basis in archaeological fact.

The problems are 1) there is too much spruce relative to other woods for the sole source to be driftwood, versus 2) there is no context for contacts this early with Scandinavia. Despite the attraction of timber importing, it is perhaps safer to take the conservative line that the specimens obtained, from only three sites, do not give a true picture of the overall pattern of wood-types, and that driftwood is indeed the source, although this still leaves the question of how enough driftwood could be accumulated to furnish all of the brochs in Shetland if these really were built over a relatively short space of time.

The wood does not survive to allow independent expert checking of identification.

Worked Stone (Appendix 2, Table 45)

The last class of non-ceramic artefact is the most widespread and the least informative. Twenty broch sites have produced objects of stone modified by, or for, human use, but these are only stratified in three cases, at Clickhimin, Jarlshof and Sae Breck. Diagram 1, vi, 6.

Typical/

Typical artefacts are ovoid beach pebbles, used as hammerstones, spherical pebbles used as rubbing-stones, elongate sandstone hones and loomweights and/or net-sinkers. Less frequent are querns, both rotary and non-rotary, spindle-whorls, pot-lids and other flat discs, and a variety of chipped slate objects resembling metal tools such as knives, saws, axes and shovels.

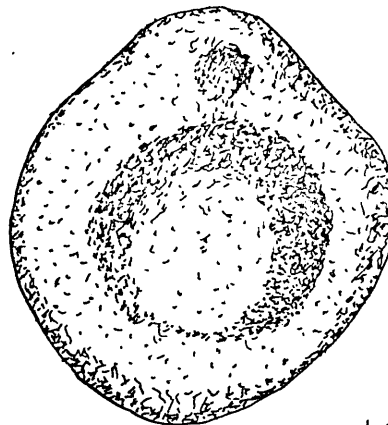
Of these, hammerstones and rubbing stones are ubiquitous on Scottish broch sites, and indeed on most prehistoric sites. Hones are more informative, being distinctive and unequivocal evidence for the former existence of metal tools with either points or edges, and the very number of hones from Clickhimin would suggest frequent use, perhaps arguing for the sharpening of tools rather than weapons.

The sub-conical loomweights (they seem unlikely on grounds of later usage in Shetland to be net-sinkers), combined with the (possibly later) evidence from the weaving combs, provide evidence for the weaving of yarn, presumably wool, spun with the aid of the stone and (rarely) pottery whorls. The whorls from broch levels seem to be plain, with decoration only appearing in the wheelhouse levels at Jarlshof. They are generally of steatite, more rarely sandstone or cut-down sherds of B fabric pottery.

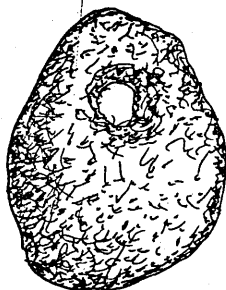
Querns are of both rotary and non-rotary type. The rotary quern makes its appearance at the end of the broch-building phase (wheelhouse at Clickhimin, roundhouse at Jarlshof) and is thus relatively late compared with the Western Isles. There, however, the early dating rests largely on the intrusive quern below the broch occupation layers at Dun Mor Vaul (MacKie, 1974), where the quern is certainly lower than seems at all likely, especially as even if it appeared with the broch, it would still be the earliest rotary quern in Scotland by some years, although not many, as a similar quern is incorporated in the floor of the mural gallery at the same site/



Hone

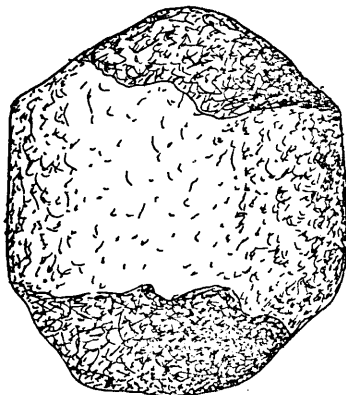
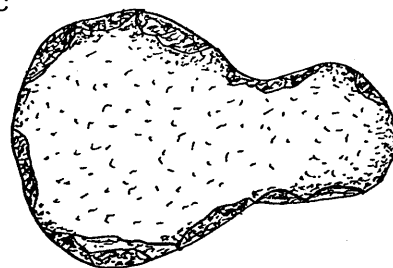


Lamp



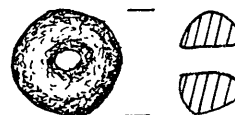
Loomweight

"Handled disc"



Hammerstone

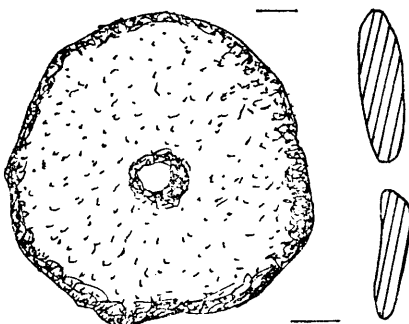
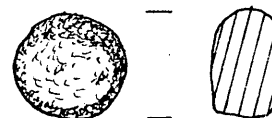
Bead



Shale — fragment of ring



Counter



Net sinker ?

0 5 10 cm

site. Certainly there is no evidence (pace MacKie, 1972) for a spread of rotary querns to Shetland with brochs, even if they reach the Northern Mainland at this date. Probably the separate introduction of the type to the Western Isles, envisaged by MacKie, is valid but the link to the north as part of the supposed "broch invasion" is more dubious, in the absence of early stratified querns from that region (see also chapters iii and iv, above).

The appearance of rotary querns at later dates in the Northern sequences could be used to argue that brochs were in use earlier in the North than in the West. However, it could be used equally well to argue that brochs are contemporary everywhere and that rotary querns spread slowly. This question must remain open.

Chipped slate tools are very much a Shetland speciality, occurring from the Neolithic onwards, and most common on the sandstones of the South and East Mainland. The larger items seem to be in the nature of shovels, but are prohibitively heavy. The only other possible function might be as settings for door-posts, but this seems less likely. Some of the smaller artefacts look like knives, axes or adzes, and many have been used for the primary butchering of meat, and in some cases as scrapers.

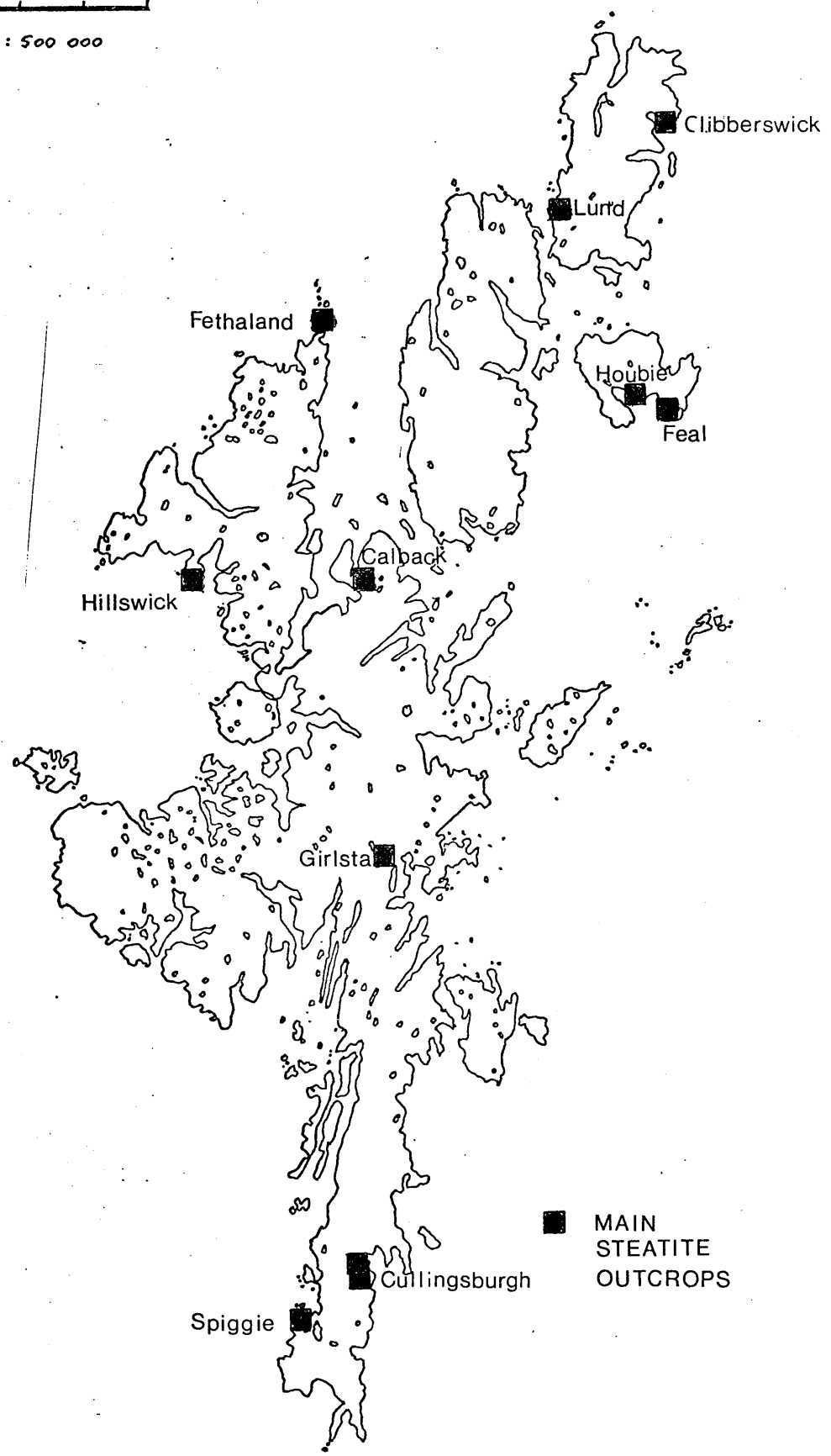
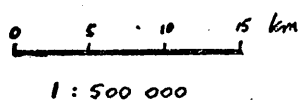
Two broch sites have also produced examples of a completely different order of cutting tool. Burgan (two specimens) and Clickhimin (fragment) are find spots for polished stone knives of riebeckite-porphyr, of a type peculiar to Shetland and normally assumed to be of late Neolithic date, associated with flensing or leather-working (Fojut, in preparation). There seems to be no reason to change this dating, as the artefacts, being both ornamental and functional, could easily have reached the brochs in much the/

the same way as Roman glass fragments. Hoards are found from time to time during peat-cutting today, so may well have been discovered similarly in the Iron Age.

The final, and perhaps most interesting, stone artefact-type is the lamp of sandstone or steatite. These are widespread in broch and post-broch contexts throughout Scotland. The form is standardised, a hemi-spherical hollowed bowl with a blister on one side, itself hollowed, to bear the wick. The fuel would have been some form of animal oil, although seabird oil is perhaps more likely than the whale or seal oil suggested by Hamilton (1968). The form is so simply functional that the long distance parallels with the Mediterranean cited by Hamilton are more likely to be coincidental than influential.

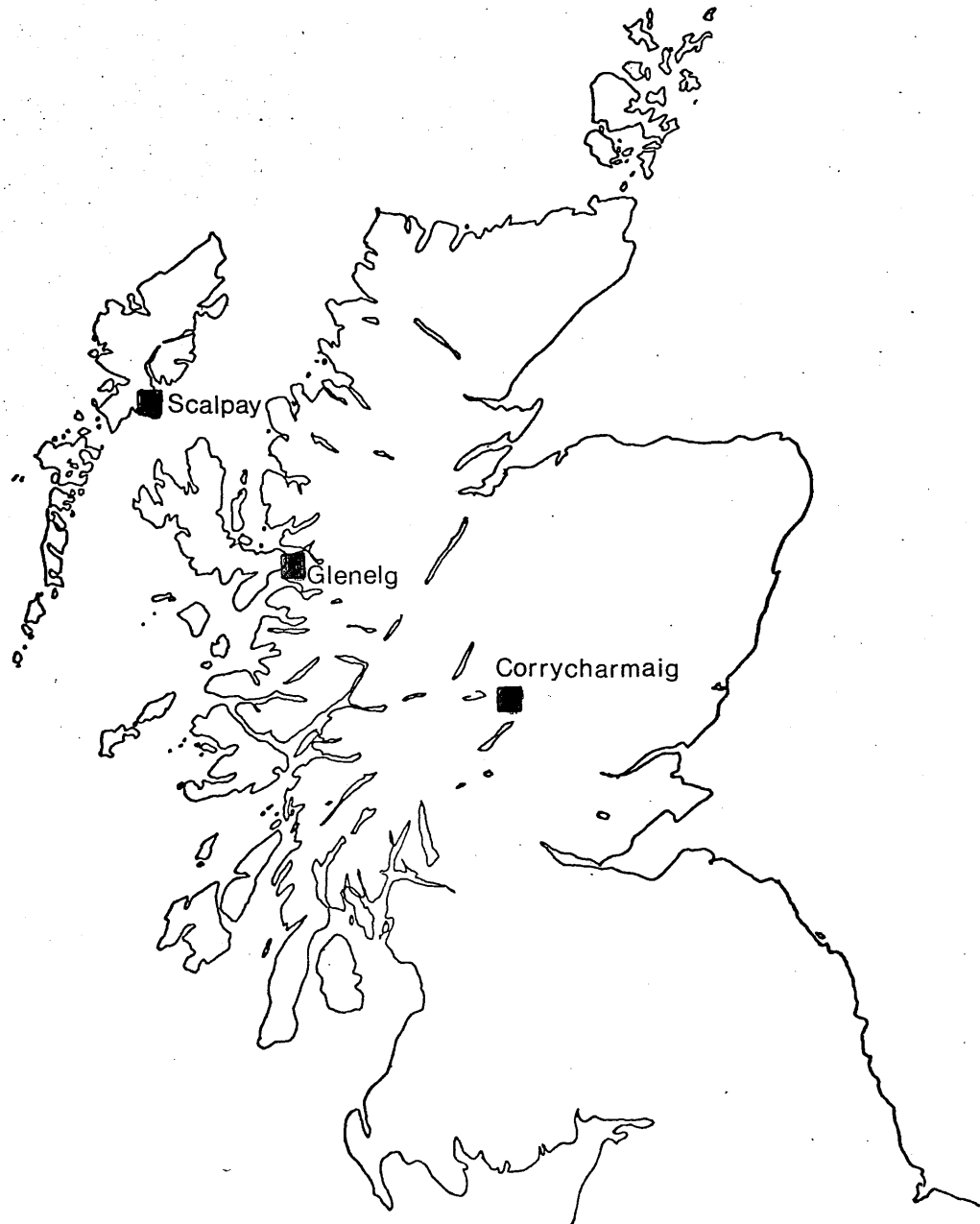
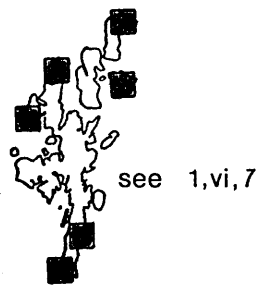
MacKie (1973) argues for contacts late in the broch development sequence between Shetland and West Highland Scotland on the basis of two steatite lamps from Glenelg, in Dun Telve (Curle, 1916). However, MacKie fails to note that in the 1930's steatite was being mined at Ardintoul, only 10 kilometres to the north, and without the need to import material, the style of the lamps is not sufficient evidence to argue for such contact. (Macgregor, 1940, for steatite sources in Scotland). However, such a link between the two regions can be inferred on other grounds (see chapter iv, above).

More generally, the subject of steatite has been much misinterpreted, largely through the enthusiasm of archaeologists. This useful product of the alteration of basic igneous or metamorphic rocks is easily crushed or carved, and occurs in at least ten major outcrops in Shetland (Ritchie, pers. comm.) These are shown on Map 1, vi, 7 which displays only/



■ MAIN
STEATITE
OUTCROPS

■ MAJOR STEATITE
OUTCROPS



only those outcrops with visible traces of exploitation (mainly Norse to Medieval). Hamilton (1956) argued for subservient "natives" being "brought down" from Cunningsburgh bringing their own pottery with them, to build the broch. This ignores three vital facts.

- 1) There was steatite gritted pottery at Jarlshof before the broch was built, without anyone to "bring in" the usage.
- 2) There is widespread use of steatite as backing in Shetland pottery as early as the Neolithic, and this may occur up to 50 kilometres from the nearest source (Scord of Brouster, West Mainland; personal observations 1977 & 1978).
3. The nearest source of steatite is not Cunningsburgh but Spiggie, where Hamilton stayed during the excavations. (Henderson, pers. comm.) The fact that the expert analyst concluded that the steatite at Jarlshof could have come from Cunningsburgh is totally irrelevant, as samples from other sources were not tested (Hamilton, 1956).

Thus the elaborate social implications deduced by Hamilton are held to be invalidated.

Shetland is the likely main source for steatite in North Scotland throughout most of early history and pre history. The only other major sources are Scalpay (S. Harris), Corrycharmaig (Perthshire) and the above mentioned Ardintoul (Glenelg). These are shown on Map 1, vi, 8.

The total evidence from non-ceramic material has the effect of suggesting a basic common ancestry for Shetland with the antecedents of the broch-building peoples of the rest of Scotland, but an ancestry diverging sufficiently far enough in time to allow the development of distinctive traits. Most of the idiosyncracies of Shetland broch artefacts can be explained by the geographical remoteness of the archipelago. Thus/

Thus rotary querns arrive late, as, probably, do metal tools in quantity. Flint never seems to have reached Shetland in appreciable amounts, with a few outstanding exceptions, such as the Fair Isle flint axe, and some arrowheads of Bronze Age type. What flint does occur on beaches is of very poor quality and small dimensions, and is very scarce. This scarcity of cutting edges may have been in part fulfilled by the use of quartz and polished igneous rocks, but the general difficulty of obtaining a good edge from any Shetland materials might be thought to have promoted the importation of bronze and later iron. However, the relatively poor economic basis of Shetland would have acted to restrict the importation of metals, since Shetland would have been hard pressed to produce any goods capable of economic exchange with production or mining centres, especially once travel distances are taken into account.

Overall, the slender evidence of the more valuable artefacts, the decorations of metal and glass, would seem to support the ceramic evidence in suggesting a broch/wheelhouse transition date for the major impact of West Coast elements in Shetland, and to some extent this is supported by the stratigraphic position of the earliest Shetland rotary querns.

The two known non-broch Iron Age smithy sites, Wiltrow and Underhoull, would be as probably dated to the wheelhouse phase as to any earlier, and this, with the traces of iron-working at Clickhimin and Jarlshof, enables a summary chart of suggested developments to be compiled.

This/

This clearly demonstrates the new phasing suggested in chapters iii, iv and above, with the main phases of external influence at the early Iron Age and immediately after the brochs:

	LBA/EIA	Pre-broch IA	Brochs	W'houses
Pottery	A	B/C	D?	C, D?
Metal	Bronze (rare)	Bronze Iron	(increases) (rare)	Bronze Iron
Bone				Combs Dice
Stone				Rotary querns
Date		c. 150 B.C.	c. 0 A.D.	c. 150 A.D.

(The above table shows only the first appearance of diagnostic material in Shetland, as derived from study of all available material and re-evaluation of published reports.)

Evidence for Economic Activities

Archaeological evidence may be of two basic types. It may be direct, the actual remains of the primary object of interest, or indirect, the remains of associated objects which give evidence on the area of interest. At a gross level, all archaeological evidence must be of the second type, since even a skeleton is but a part of the object of interest, man and his society. However, for all practical purposes, the division can be used as here to separate concrete from circumstantial.

Direct Evidence

The remains of the primary products of man's economic activity during the Shetland Iron Age take the form of bones and rare preserved grain and grain impression.

The grain is of that type normally described as bere, the common form of barley in Northern Scotland at this time. However, it has recently been noted that bere and emmer grains, especially when carbonised, are readily confused in the field (Ralston, pers. comm.) This probably does not affect Shetland, where wheat must, by the Iron Age, have been a highly unlikely crop due to climatic condition. The evidence for grain comes from carbonised material at Jarlshof and Clickhimin and possible grain impressions on Jarlshof pottery.

There is no evidence of oats, which might be expected this early, as it occurs in Aberdeenshire in the Neolithic at Balbridie, together with emmer (ibid.)

Also missing, but possibly a likely crop, is the Celtic bean (Alcock, pers. comm.), especially as Shetland in later times was known for good crops of the leguminous type (Low, 1774). The only food plants native to Shetland are the wild sorrel and some species of goosefoot, both known as/

as frequent species in more southerly sites, where they may have formed a substantial and rarely-appreciated element in diet.

Protein input (apart from grain protein, which is itself high, especially in early types) would have been provided by both land and marine animals. The animals represented by bones include, in descending order of frequency, sheep, oxen/cattle, pigs, horses, seal, whales and dog. Rarer species identified include cat, wolf (one only) and walrus. Of these, only sheep, cattle and pig feature prominently, and seal are, considering their present common occurrence, quite sparsely represented.

Bird bones are few and of common, local, species, except for the now extinct great auk. No fish bones are recorded from broch levels, although cod and ling are in evidence in the earlier levels at Jarlshof. Order of frequency, while a crude measure, is all that can be attempted with the available data, mostly recorded in simple presence/absence terms from chance exposures of midden deposits.

The general pattern of bones found accords well with the accepted picture of a pastoral based economy, with the exception of the high number of pig remains recorded. While this is a common Iron Age feature, the keeping of pigs has never been popular in historically recorded Shetland. This may, of course, be a Norse-originated aversion rather than any real unsuitability of the islands for pigs.

Shetland is, and apparently always has been, possessed of a sparse mammalian fauna. The only mammal of any size which could perhaps be native by Iron Age times is the hare. Probably/

14
Probably voles and mice were also present by this date, all co-immigrants of human groups. Thus hunting for wild game would have been restricted to the sea. Seals and (rarely) walrus are represented, but at Jarlshof it is noticeable that seal bones do not occur in all levels. This may reflect either taboos on eating the flesh, or simply a natural aversion to the strong, oily, flavour. In the both cases, seal skin might still be valued and used, along with seal oil, but the butchering would take place away from habitation sites. Much the same comments apply to whalemeat.

The whole question of butchering practice has received little attention from Scottish archaeologists. Recently MacKie (1974) has suggested off-site butchering of sheep at Dun Mor Vaul, and certainly the sheep and cattle bones at Jarlshof are rather short on the less edible portions of the anatomy, but not to any extreme degree. More attention has been paid to this aspect of environmental archaeology in sites in other regions (see Chaplin, in Alcock (ed), 1968).

The scarcity of fish bones must surely reflect the inadequacy of the recovery techniques rather than their actual absence from sites. Certainly fish vertebrae (cod?) were visible in midden layers exposed at Hillwick, Infield and Eastshore during 1979 field work. As flotation is required to ensure adequate recovery, the absence of this technique from Shetland excavations doubtless accounts for the low numbers of fish bones recovered. The large quantities of shellfish from some sites, with limpets dominant, are more likely to be the remains of bait than of directly consumed food.

Apart/

Apart from food, there is evidence for the types of fuel used, for heating and cooking, in the form of peat ash and charcoal of willow and alder, both of which, together with birch, are part of the native flora.

In the absence of total excavation under modern conditions of any midden deposit, the material remains of food production merely serve to indicate the sources of nourishment, rather than their relative importance.

Indirect Evidence

Most of the indirect evidence serves to confirm the picture given by the direct. Querns testify to grain production, as do the rubbing stones. The frequent hammer stones may be used in breaking bones, while some of the slate tools may be used for coarse butchering. Presumably metal tools were used for the finer preparation of meat, and these have generally been lost, either through natural decomposition or, more probably, in metal-poor Shetland, through re-use as scrap for production of replacements.

The spindle whorls, and loomweights are conclusive circumstantial evidence for the production of woollen cloth, while the various pegs of bone and wood from Clickhimin are more tentatively suggestive of hide-curing. The frequently cited "long-handled weaving combs" need not necessarily be for their nominal purpose, as an alternative function, in cleaning hair from skins prior to curing, has been suggested.

Fishing is evidenced by the putative fish-gorges in bronze from Clickhimin, although these could be heavy-duty needles. There are a few roughly circular, flat weights of stone, probably net-sinkers from Jarlshof and Clickhimin (see Diagram 1, vi, 6).

Two/

Two aspects of Shetland economic activity can be inferred circumstantially but not from direct evidence. Firstly, there must have been importation of metal, certainly tin and most probably prepared bronze. There is no good evidence that the copper of Mousa or Sandlodge was worked at this period, and there is no tin known in Shetland, though its occurrence may not, geologically, be impossible (Mykura, 1976). Iron, on the other hand, would have been available in the form of limonite or bog-iron. Fuel for smelting also poses a problem, little experimentation having been conducted with peat-fuelled metallurgy. Secondly, the amount of timber used in broch-structures must have necessitated some strongly organised control of timber supply, either in the form of regulation of driftwood collection, or in the actual importation of timber, presumably from Scandinavia rather than Scotland (see above).

Both of these activities would necessitate the possession of sea-worthy vessels somewhat more substantial than an inshore-fishing coracle. There is no evidence whatsoever for seamanship in Shetland or anywhere else in North Scotland, apart from oblique later references in Roman historians to Pictish sea-power.

Taken in total, the evidence for economic activity in broch-period Shetland is purely qualitative. There is no possible method by which the available data can be used to give the relative importance of each food element, the scale of the weaving and leather industries, or the extent of trade or exchange. Even a total excavation of an undisturbed site would only produce a picture of one unit amongst many. The nature and methods of traditional archaeology cannot expect to progress beyond this qualitative stage, at least in the foreseeable future, and new approaches must be sought.

A possibly valid alternative strategy for economic reconstruction will be outlined in Section 2, particularly chapter iii.

CHAPTER VII

Structure, Outbuildings and Defensive Works of Shetland Brochs

Note: Preservation of Features

Almost every feature which can be analysed and discussed is, like the material of the artefactual assemblage of the previous chapter, prone to be affected by the vagaries of chance over the period between the construction of the brochs and the present day.

Concerning the structure, while external diameter may be reduced, by partial burial of the foot of the battered wall, internal diameter will remain fairly constant as the inside face of the broch rose approximately vertically. Consequently thickness and percentage wallbase are prone to under-estimation. The surviving height may be much greater than is apparent. Clearance of rubble at Mousa raised the apparent height by 0.8 metres, and over 2.0 metres of Virkie broch lay totally covered until its recent discovery. All details of the ground plan may be obscured by fallen debris, the most difficult problems being posed by the total concealment of basal cells and stairways. The latter, along with galleries and scarcements, are less likely to be covered by rubble than to form part of that rubble, through natural or human assisted dilapidation. Entrance passages, stairs and doorways are especially likely to have suffered from stone-robbing, their lintels being desirable prizes. It is remarkable that crofts near ruinous brochs do seem to have more massive masonry than those elsewhere.

Even once ruined, the broch mound may be not safe.

Isleburgh was removed entirely, Musselbrough became the foundations of a pier while Burravoe went to form the drying beach at Brae. In addition to destruction, later buildings may be superimposed, the coastguard station at Sae Breck and the fish factory at Heogan being the last of a series of such structures, which include watch-houses at Balta, Belmont and Dalsetter, sheep-pens at Aith and plantie-krubs at Loch of Kettlester and Loch of Brow. Sometimes this siting may be quite inadvertent, as at Jarlshof, but more usually the mound is utilised for its/

its prominence. The last example of this favouritism for broch mounds is the siting of telegraph-poles in broch mounds at Tumlin, Heglibster and, perhaps, Easter Skeld. The rubble of the interior is much easier to penetrate than the local bedrock!

The accumulation of quantities of debris may totally conceal internal additions, as was the case of Mousa, and even worse, careless "cleaning" of the broch interior may remove features which have become confused with the fallen masonry. This was the fate of the wheelhouse piers recorded at Clickhimin in the 1860's (Dryden, 1872). External buildings are less prone to burial, unless they lie close below the broch wall, and simply suffer dilapidation in their own right, accelerated by their comparatively flimsy structure.

Ramparts tend to degrade, both walls and faced ramparts often coming to resemble unfaced ramparts. Ditches are infilled by the same process. While much of the erosion of outer defences and subsiding buildings is due to natural agencies, aided by the feet of sheep and cattle, agricultural activities have taken their toll. The defensive ramparts are frequently incorporated into boundaries (Head of Brough, Greenbank) or slighted to erect crofts, built from the debris (Aith, Burra Ness) or even churches (Housabister). Sections of rampart may form bases for plantie-krubs or be quarried for road-making.

The Shetland antiquarian has been singularly innocent as a destructive agent. Few brochs have been looted. This is perhaps a result of the small number of "gentleman farmers" and lairds in Shetland with time to spare for such dilettante pastimes. In fact the principal plaint is not against destruction, but against the restoration of sites without a record of their original state. Clickhimin and Mousa have both been affected by this. Mousa is certainly not a "nineteenth century/

century folly" but is certainly rebuilt rather more than is generally realised.

All in all, it will be seen that the uncertainty of most structural and allied features make the drawing of firm conclusions a very dubious affair. Field work is much less useful as a guide to broch structure than with broch environment as will be demonstrated in Section 2, below. Nevertheless, much of interest can be observed and measured in the field.



Triangular lintel : An ingenious solution to the problem
of spreading the weight of wall above
the entrance passage at Culswick broch.

An Analytical Discussion of Available Data

The only comprehensive surveys of broch architecture and associated structures are those of Graham (1947) and MacKie (1973). Of these, only the latter treats sites in more than summary detail, and even then the best preserved brochs are taken as typical. Most of the comparative material from outside Shetland is drawn from the latter source, by permission of the author.

As MacKie observes, of some 513 brochs or suspected brochs, in Scotland, only 170 have any measurable features, and of these 170 only 132 have measurable outer diameters, the commonest figure. In fact, this is not the case, as MacKie's field work, being perforce concentrated on the better preserved sites, did not uncover the fact that many more sites do, in fact, have measurable dimensions. The reasons for this are several: clearing of ruins since the commission surveys, a better knowledge of what is significant since the date of the early surveys, and lastly the harsh fact that in many cases the surveys of the Commission were neither as thorough or as well presented as would today seem desirable. This last observation is not made as criticism of the gallant officers who, often single handed, were expected to record every feature of interest in each county, against a deadline and with cumbersome equipment, but is rather an illustration of the effect of changing data-requirements as methods of study progress. It might be suggested, on the basis of the fieldwork recently carried out in Shetland, that about 200 of Scottish sites might reveal some measurements of interest. No-one has ever completed the massive task of visiting each site.

Against this might be set MacKie's contention that the well preserved sites form a random sample which can thus be taken as representative of the whole. However, this is highly questionable on several grounds. Any "unusual" or "experimental" structures, which would mark attempts to develop new features in broch architecture, might be expected to have a greater chance of total and catastrophic collapse, especially/

especially as some quite normal structures, such as Midhowe and Gurness, show symptoms of incipient instability dating from immediately after their building. More important are the regional differences in preservation of a group of structures whose regional variation seems firmly established. Destruction of sites varies in descending order of severity of damage as follows: Orkney, Caithness, Sutherland, Shetland, Western Isles, Remainder of Highlands, Lowlands. We have most information (apart from the few excavations) about sites destroyed through agricultural activities, or disturbed by local landowners. In both cases the pattern of knowledge is heavily biased in favour of areas with good farmland. It might be argued that the total sample of brochs left us is less biased towards agricultural areas than formerly, as the destruction there has been higher. Our knowledge is mainly of brochs in these areas. As a result the main body of knowledge concerns the commonest type of broch location. A further complicating factor is that the more massively built brochs will tend to survive better. Overall, the idea that well-preserved brochs are a random and typical sample has many points against it.

Whatever the true case, it is indisputable that the larger the sample, the more likely the results are to reflect the original situation. It is with this aim in mind that the present survey of every possible site in Shetland was undertaken. As will be seen below, the effort involved did produce results not suggested by the less detailed analysis of MacKie (1973). The disadvantage is that the completion of a survey at the level of this for Scotland as a whole would take at least ten years.

Broch Structure

For original field work and analysis, the following classes were used:

- Definite: Circular, no reason to reject broch status in favour of any other.
- Acceptable: Reliable records of the former existence of a definite broch.
- Possible: Ruinous, circular, too far destroyed to make firm conclusions.
- Doubtful: Nothing on site, or else ruins unlikely to be a broch.
- Rejected: Positively identified as a structure other than a broch.

A broch was defined at its most basic level, a circular drystone structure with a single narrow entrance piercing a regular wall thick enough to have been built to a fair height. In practice, this meant 25 to 15 metres diameter and a wall from 4 metres thick. No structure was rejected solely on grounds of diameter.

The sites were moved from category to category as field work progressed, and the final totals for brochs (down to possible) were:

Definite	51	
Acceptable	5	
Possible	19	Total 75

It must be noted that on the strict definition of a broch, to include specialised entrance, galleried wall and stair, only four sites would qualify as true brochs. In part this is a function/

function of definition, since in Shetland the brochs are mainly solid based, so both galleries and stair may be absent in ruins standing to a height of two metres or more. The strict definition of a broch (MacKie, 1965a) is biased in favour of diagnosing ground galleried structures as brochs, assuming all structures to be equally ruinous.

A series of comparative statistical tests on the dimensions of broch structures failed to reveal any significant differences between the three accepted classes, and these were therefore dispensed with, and are treated hereafter together. This increases the sample size upon which conclusions will be drawn.

The chief problem is that of the 75 brochs, many are too ruinous to display more than overall dimensions and where details are measurable, these are not consistently the same details. As a result, the use of high-powered correlation tests must be abandoned.

The basic dimensions considered, and the number of sites which gave a positive response, are listed here:

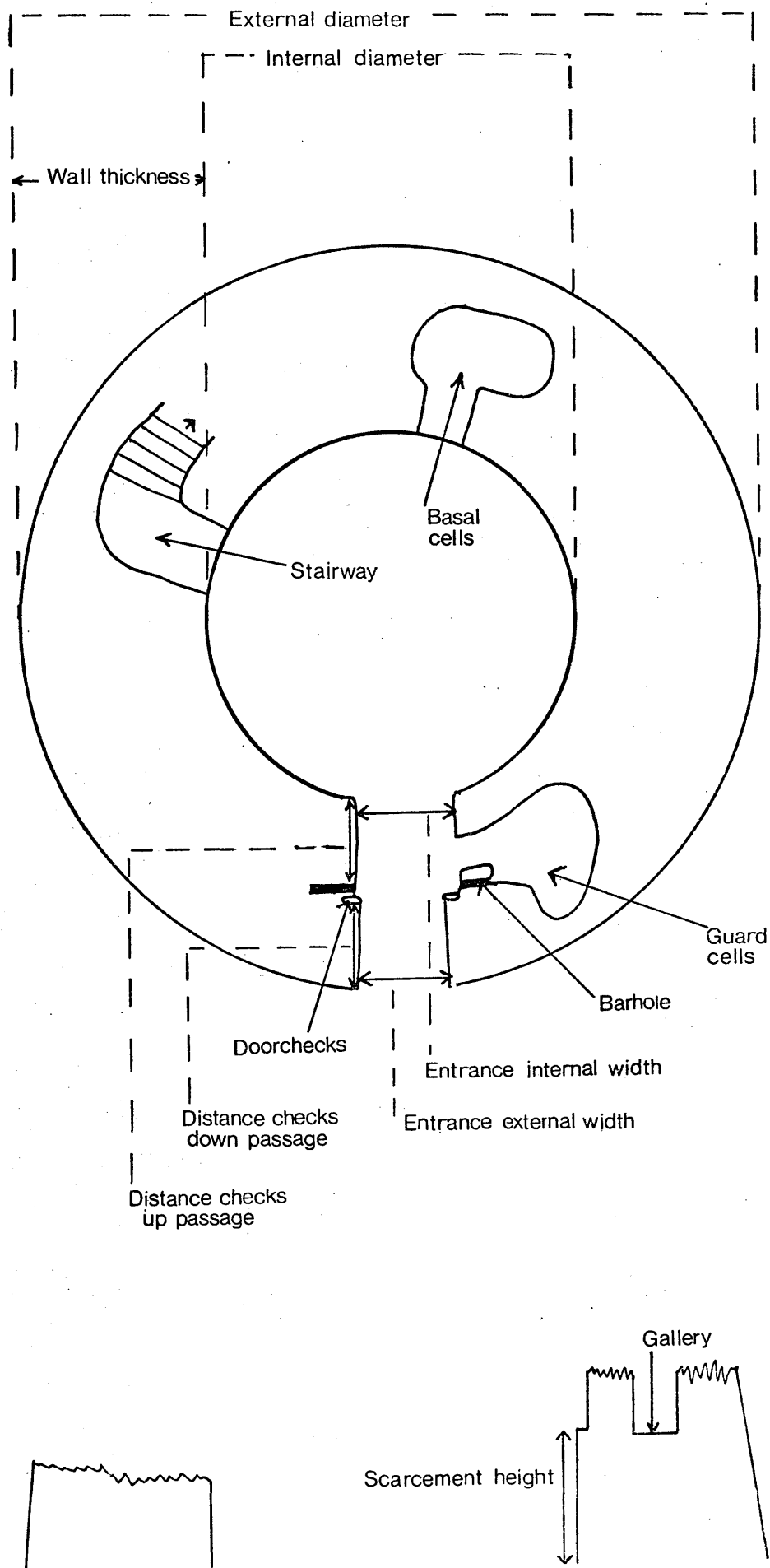
Response Appendix 2, Table

Outer Diameter /

	<u>Response</u>	<u>Appendix 2, Table</u>
Outer diameter	51	1
Inner diameter	27)	2
Wall thickness	27)	3
Ground-plan type	27)	7
Upper galleries	9	6
Entrance: orientation	22	8
outer width	14	9
inner width	6	10
Door checks: down passage	6	11
: up passage	6	12
: type	6	13
Barhole(s)	6	14
Void(s)	4	15
Number of guard cells	13)	17
Position of guard cells	13)	17
Ground level cells	24	18
Stairway(s)	3	19
Scarcement(s)	7	20

These features are displayed schematically on Diagram 1, vii, 1.

The method of analysis was to examine features individually and then to investigate combinations of features, to determine whether different "strains" of brochs occur in Shetland, or whether the structures form a homogeneous class.



Statistical Indices

Four standardised and simple indices are employed throughout the following discussion. These are defined as follows:

$$\text{Mean} = \frac{\sum \text{measurement}}{\text{number of sites}}$$

$$\text{Standard deviation} = \sqrt{\frac{\sum (\text{mean-measurement})^2}{\text{number of sites}}}$$

$$\text{Coefficient of variation} = \frac{\text{Standard deviation} \times 100}{\text{mean}}$$

$$\text{Skewness} = \frac{\sum (\text{measurement} - \text{mean})^3}{\text{number of sites} \times (\text{standard deviation})^3}$$

The first three are commonplace and require no detailed explanation. The last is a useful measure of the departure of a distribution from the Normal, and is an essential consideration as so few archaeological situations are truly normal: any distribution of direct measurements must, theoretically, be prone to skewness, as there is a fixed lower limit (zero) but no upper limit (Ebdon, 1977).

External Diameter (Diagram 1, vii, 2A)

This is available from 51 sites, as follows:

Mean	17.84 metres
S.D.	1.42 metres
C.of V.	7.96%
Skewness	+0.1093

The last factor indicates a near-normal distribution.

Internal diameter is available from only 27 sites;

Mean	8.88 metres
Standard Deviation	1.14 metres
Coefficient of Variation	12.85%
Skewness	- 0.1623

Again, this approaches the normal distribution very closely. Diagram 1, vii, 2B shows the classified results.

Wall thickness can readily be calculated, since all 27 inner diameters come from sites with outer diameters measurable. However, this facile approach must be treated with care. Firstly, not all Shetland brochs have outer and inner faces concentric (Burraness, for example) and secondly, outer diameters can usually be measured only some distance above true ground level, so any figure for wall thickness will tend to be an under estimate. However, the measure is frequently used, so has/

has been given here:

Mean	4.55 metres
Standard deviation	0.37 metres
Coefficient of Variation	8.13%
Skewness	-0.011

The distribution is almost exactly Normal.

Percentage wall-base of total diameter is used as a measure by MacKie (1971, 1973), and certainly provides a more meaningful value than wall-thickness alone, since it measures the relative massiveness of the wall-base, a vital consideration in the classification of brochs, as this is normally the only part of the structure left, even if the rubble is cleared away. Compounded as it is of external diameter and wall thickness, it is prone to the measurement inaccuracies of these figures.

Mean	51.04%
Standard deviation	3.99%
Coefficient of variation	7.82%
Skewness	+0.9117

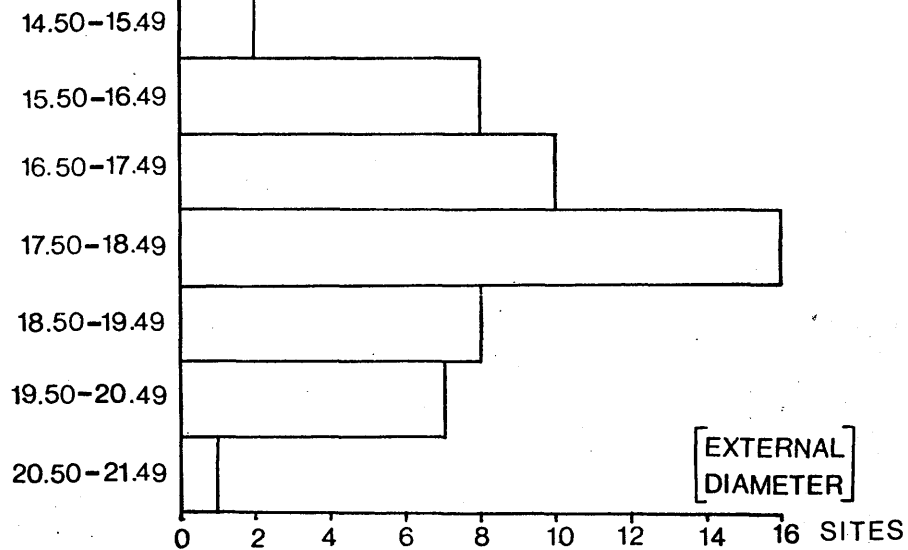
Clearly this distribution is very far from Normal. However, the removal of the single site of Mousa (number 38) from the data has this effect:

Mean	51.54%
Standard deviation	3.96%
Coefficient of variation	7.84%
Skewness	-0.1725

That is, Mousa is so much more massive that it distorts the distribution away from Normal to a very marked degree, despite the restraint imposed by the 26 other brochs. The percentage wall-base figures are set out in Diagram 1, vii, 2C, and show Mousa clearly as sui generis in terms of wall-base

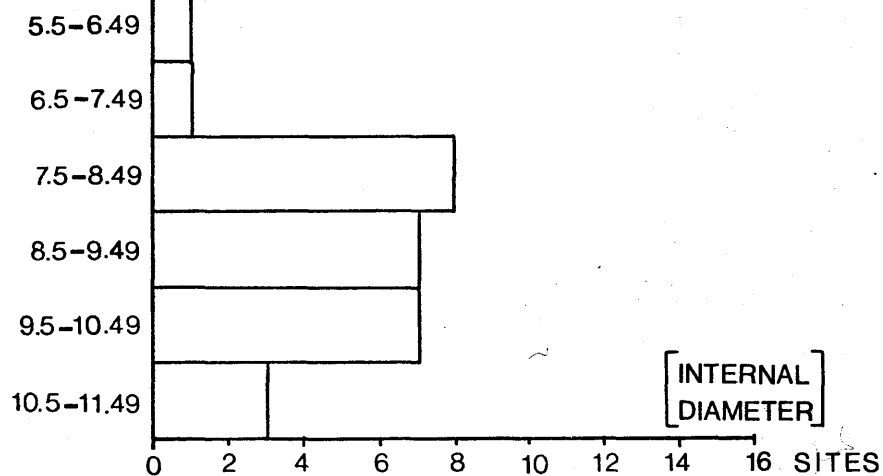
This/

DIAMETER
(metres)



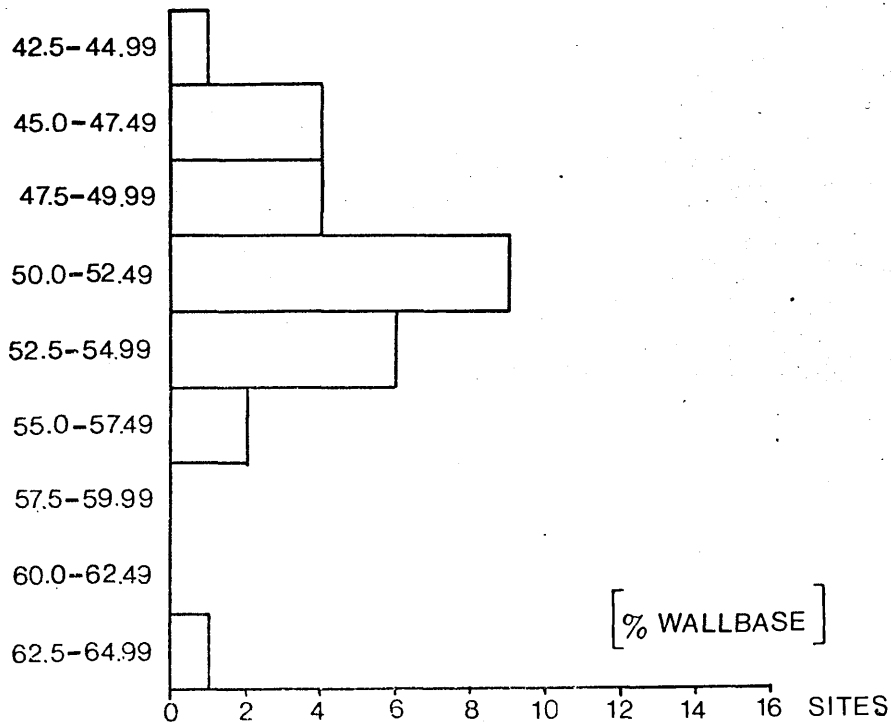
A

DIAMETER
(metres)



B

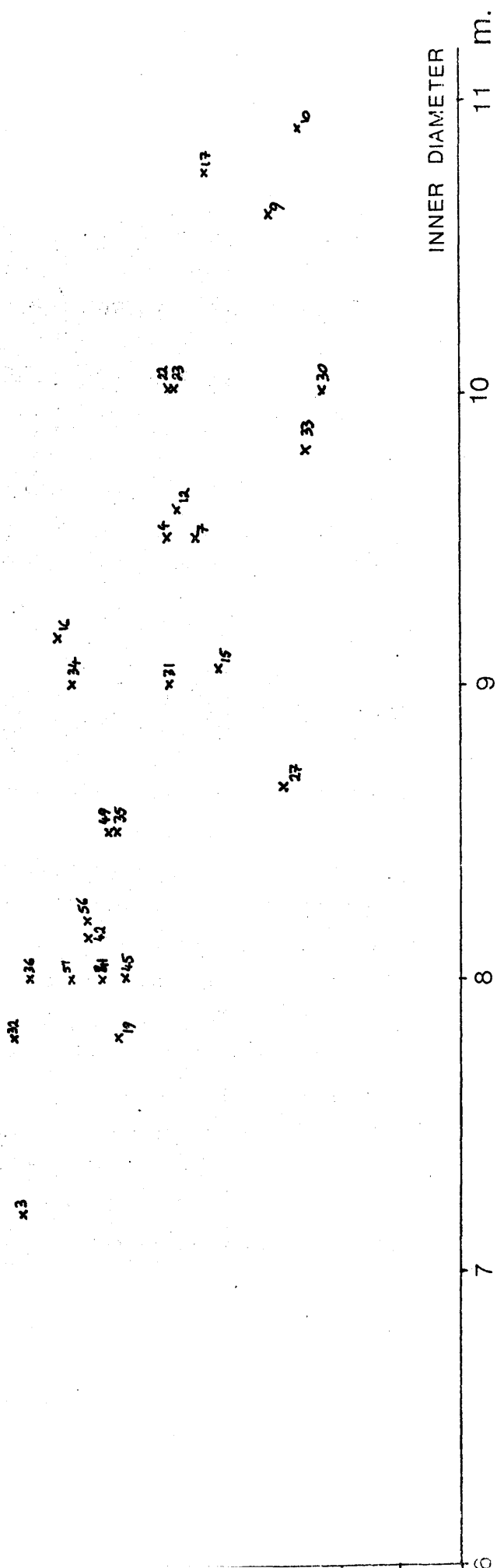
%



C

WALLBASE/OUTER DIAMETER

x 38



This consideration also holds for the overall case of Scotland, where Mousa is five percent more massive than the next measurable sites, Ness and Nybster, in Caithness. To illustrate this singularity, a graph of wall-proportion against internal diameter was prepared, and forms Diagram 1, vii, 3. Here only Shetland brochs are shown, but comparison with MacKie's graph for the whole of Scotland (MacKie, 1971 p.42) shows that, Mousa excepted, the Shetland brochs form a more homogeneous group than those of any other region.

Thus the argument pursued by many writers, including Graham (1947), that as Mousa represents the "fully developed" broch, and occurs in Shetland, therefore all Shetland brochs are relatively late, simply does not hold. Mousa is not the type, but the exception, among Shetland brochs, and would in fact be more at home in northern Caithness, although even here it would be exceptional.

Turning from the "aberrant" Mousa to the other Shetland brochs, the relative homogeneity of the group suggests either a single builder or, more probably, a fairly close (or even contemporaneous) building date, with little experimentation. The tight range of variation suggests copying of a common idea by competent individuals (see also chapter viii, following).

Ground plan, as well as simple proportion, has been used to define classes of broch (Graham, 1947; Scott, 1947; MacKie, 1973). Of the thirteen sites where this can be ascertained, eleven are solid-based, two seem transitional, and none are ground-galleried. The broch at Burraland (Sandwick), often assumed to be ground-galleried, appears on closer inspection to be a normal Shetland solid-base broch, buried to the level of the first gallery. The two "transitional" brochs/

Brochs are highly individual. Huxter appears to have had a stretch of ground-gallery running part, but not all, of the way around the base (as, for example, has Gurness in Orkney). West Burrafirth is even more singular, with a perplexing mixture of single and double basal cells. The overall impression is of a wall hollowed for lightness rather than to provide accommodation and the structure recalls the blockhouse at Clickhimin in the unusual nature of the cells, some of which seem to have been accessible only through the roof.

Adding the less certain sites, the totals are:

	<u>Certain</u>	<u>Probable</u>	<u>Total</u>
Ground-galleried	0	1	1
Transitional	2	0	2
Solid-based	11	13	24
	<u>13</u>	<u>14</u>	<u>27</u>

Again, on the sequence of development proposed by MacKie (1965, 1971), Shetland brochs would lie late, being almost exclusively solid-based. However, if the early date of the Clickhimin blockhouse (Hamilton, 1968) is maintained, the similarity between this structure and West Burrafirth broch must argue for independent experimentation with hollow-walling in Shetland and presumably independent invention of the broch there. If, on the other hand, the version of the Clickhimin sequence presented in chapter iii is accepted, then the blockhouse would be of the broch period, and West Burrafirth would then represent an attempt to economise on material, wholly understandable when all of the stone used would have required transportation to the island site. Once again, the uncertainty of the Clickhimin sequence makes alternative, conflicting/

conflicting views possible.

Entrance details have been used to suggest a developmental sequence, with the position of the door and the number and position of guard-cells as central considerations. Tabulation of the details from measurable sites gives:

<u>Number of cells</u>	<u>Certain</u>	<u>Probable</u>	<u>Total</u>
0	2	0	2
1 - left	0	2	2
1 - right	4	3	7
2	1	1	2
	<hr/> 7	<hr/> 6	<hr/> 13

<u>Type of doorcheck</u>	<u>Certain</u>	<u>Probable</u>	<u>Total</u>
Slabs, inset	3	0	3
Built recess	2	0	2
No checks	0	0	0
	<hr/> 5	<hr/> 0	<hr/> 5

None of the other features show on enough sites to be worth considering, except for entrance-orientation, which is often related to the siting in such a manner that the final approach involves an awkward ninety-degree turn, Burland at Brindister providing a splendid example. Entrance-orientation did not reveal any preference for specific compass-directions, although this was tested by a modified Tukey mean chi-squared test (Andrews, J.A.T., 1974). Lack of numerous stair-entrances made testing of the occurrence of the often cited left-hand turn on entry impossible. Levenwick certainly contradicts this idea, with the stair rising from the right-hand side of the court.

Entrance/



Natural defences : The entrance at Burland lies a short distance from the edge of precipitous cliffs, making a rush attack hazardous in the extreme.

Entrance widths show a regular variation centred on 0.95 m., and this falls close to the most frequent width for Scotland as a whole.

Returning to the details of the defensive capabilities of the entrance, it is very noticeable that the depth of the door-checks (defined as the distance from the outside edge of the lowest stone of the entrance to the first sign of the check), whether in real terms or percentage terms, is highly variable, with the five brochs with checks observable returning: 2.6m (56%), 2.6m (49%), 3.3m (64%), 1.8m (43%), 2.5m (51%). On MacKie's (1973) scheme of development, the shallower set the checks, the more "primitive" the broch, since this shallowness of the door would allow a battering-ram to be brought against it with force. Certainly, the shallowest of the doors, at Culsick, would still require a 4 metre-long ram, not a common side of timber to be lying about on the Shetland shore. However the attackers might have brought their own equipment. Certainly none of the Shetland sites would fall in the "shallow" category, although they do not include the deepest-set doors, these occurring in Caithness and Glenelg (where the double-door seems to be a late development).

It must be noted that use of the actual, rather than percentage, distance of the door down the passage tends to diagnose the thinner-walled brochs of the west as earlier, because of their wall-proportions. However, this apparent misrepresentation may not be significant, as it must be absolute, and not percentage, depth which acts as a hindrance to attack.

The actual construction of the door-checks seems, at least in Shetland, to be partly a function of the availability of slabs of suitable dimensions. The actual door was presumably wooden, and may in some cases have been set into a wooden frame behind the stone checks. The position of guard-cells again varies/

varies, but in general the "standard" right-hand cell is favoured. It has been remarked that the masonry to the right of the entrance passage at Clickhimin looks rather different from that on the left, being much less massive. The possibility of a walled-in cell remains a real one, the alteration presumably accompanying some signs of instability on that sector of the wall. It has been suggested (MacKie, 1974, for example) that on some sites the cells may have been occupied by dogs rather than humans. Nothing in the Shetland case would deny the human use of these cells, which are quite tall enough to stand upright inside, and have entrances off the main passage quite tall enough to pass through with ease. The fact that the draw-bar was pulled back into the cell, in many cases, is irrelevant, as this is simply a building convenience, the bar being moved from behind the door itself.

Other structural details which are noted include the number of basal cells:

<u>Number</u>	<u>Maximum</u> (plan clear)	<u>Minimum</u> (more may be present)	<u>Total</u>
0	1	51	52
1	0	11	11
2	0	8	8
3	2	1	3
4	1	0	1
	<u>4</u>	<u>71</u>	<u>75</u>

Little can be deduced, for few brochs give definite figures, but the great variety in number and arrangement of basal cells has given cause for comment over Scotland as a/

a whole (Graham, 1947), and may be one of the principal arguments advanced against standard plans and for specialised architects (but see MacKie, 1975 and 1976). The function of these cells has been little considered, as they obviously have acted as store places, and possibly living quarters, on many sites. However, bearing in mind the observation that in some of the Orcadian and Western Isles ground galleried brochs the ground gallery may not have been regularly used, throughout its circuit, it might be suggested that the basal cells of some solid based brochs may be at least partly intended to save stone and reduce weight. This is supported by the great height of many cells: it seems illogical that when a lintelled structure is so much easier to construct, the roofs of guard cells and basal cells should be corbelled gradually, reaching heights of three metres or more. This may suggest a desire to save weight, which reaches its greatest expression in the multi-celled West Burrafirth, and is seen in the blockhouse at Clickhimin. Both broch and blockhouse at the latter site have basal cells penetrating the first-floor level, and in the blockhouse that level provides the only access. The builders of solid based brochs may have gained the benefit of more storage space as a by-product of saving on weight, rather than vice versa, as is normally assumed.

Every broch in Shetland which survives to an appropriate height displays traces of mural galleries, Mousa with six, Clickhimin two and another seven sites with one. This being the case, it is not to be expected that stairways should be common, and excluding two very dubious examples, only Mousa, Levenwick and Clickhimin have stairs. These are all very different/

different in detail. At Mousa the stair entrance is at first floor level, so presumably access was gained by a ladder, either directly or via a raised wooden floor. At Clickhimin the stair entrance is raised, but not to the same height, while at Levenwick the stair rises from the ground level. Whereas at Mousa the stair ascends in a continuous spiral, at Clickhimin and Levenwick, there is a short ascent, followed by a traverse along half a gallery length before a second ascent. The significance of this is that since the reduction of Dun Carloway in Lewis (Thomas, 1872) Shetland has the only three brochs in Scotland where the stair ascends above first floor level. In three of these four (Dun Carloway was also such an ascent) the stair did not rise spirally, but by flights with long landings. Mousa, once again, is an exception, and the normal picture of a broch as a hollow tower with galleries linked by a spiral stair is wrong. The consequences of this are that in most brochs the greater part of the galleries could not have been used as storage or living space if access was regularly required to the wallhead. Alternatively, wallhead access was not important (see chapter iv).

The only comparative detail remaining is that regarding scarcements. Seven brochs show scarcements, Mousa having two, and only one broch survives to sufficient height without possessing one. Heights vary from 1.8 metres to 3.4 metres above ground level, and the ledge-type predominates. The presence of a scarcement must imply the intention to insert a wooden structure of some type, either a roof (Scott, 1947) or a gallery (Graham, 1948). Evidence for this is provided by the ring of postholes inside Clickhimin. Of the alternatives, a/

Structural Correlations

An attempt was made to isolate associations between features of structural design.

As has already been observed, the diameters vary consistently, that is, larger outer diameters tend to occur with larger inner diameters, while wall thickness appears to be more nearly constant. Thus in Diagram 1, vii, 3 the largest diameters associate with the smallest percentages of wallbase. This visual impression was felt to be worth checking statistically, and the Spearman Rank Correlation test was employed. This, briefly, makes a comparison between the rank of sites on each of two variables, and is so constructed that if each variable has the same rank order, relative to sites, the resultant statistic is 1, while if rank orders are perfectly reversed, then the statistic equals -1 (Ebdon, 1977).

The results are:

- | | |
|--|---------|
| 1) External diameter + internal diameter | +0.8846 |
| 2) External diameter + % wallbase | -0.7979 |
| 3) Internal diameter + % wallbase | -0.7808 |
| 4) External diameter + wall thickness | +0.5940 |

These are all significant at over 99% probability. That is the relationships are: external diameter relates to internal diameter directly and to percentage wallbase inversely, and to wall thickness directly. But it will be noted that the relationship to wall thickness is much less strong than that to percentage wallbase. This means, in non-statistical terms, that percentage wallbase is, indeed, a more accurate measure than actual wall thickness, confirming the conclusions of MacKie (1971).

The more general significance of these very close correlations is that there is no statistical evidence for assuming the brochs of Shetland to be anything other than a series of variations around a norm, with Mousa as the exceptional extreme.

The/

The other structural features are not measurable in enough quantity to allow meaningful statistical comparisons, especially as frequently the data is of a minimum rather than absolute nature, with the possibility of more remaining concealed below the debris of the ruined broch.

Structure: Conclusions

In summary, the structural features of the brochs of Shetland suggest variation around an "ideal model" of broch, with Mousa as a rather aberrant example. Apart from Mousa, the group fits firmly into the centre of the general spread of basal dimensions for Scottish brochs, and in fact forms a more closely grouped set than that of any other region. The false arguments which arise from taking Mousa as exemplar for all Shetland brochs have been discussed in chapter iv, and in fact Mousa has been shown, both by dimensions and by detail, to be wholly unsuited to its commonly accepted role as the type of well-preserved brochs.

The chief contribution of the above analysis and survey has been to demonstrate methods for measuring the variability of structures, and the type of conclusions which can be drawn.

Since the Shetland brochs do display such a narrow (and homogeneous) range of variation relative to the regional groups of other parts of Scotland, three divergent propositions are possible on the structural evidence:

- 1) Brochs were built over a long period of time (several centuries) and gradually diverged from the original (mean) plan, as represented by brochs such as Houbie.
- 2) Brochs were built over a short period by a large number of immigrant specialists.
- 3) /

3) Brochs were built by local masons with a good idea of what a broch should be, but with no standard plan. This probably took place over a short period of time.

The basic observations behind these three propositions are the variability, as measured above, the lack of discernible groupings of dimensions (which refutes the concept of a small number of specialist builders), and the apparent lack of any development.

In general, alternative 3) seems most acceptable on the basis of economy of hypothesis. The only other likely possibility, 1), is negated by the lack of any marked change or refinement of style such as would be expected if brochs were being built over many years. The evidence of material culture seems to be in favour of the local origin of the broch builders in the immediate, if not the ultimate, sense.

The accepted view that brochs came late to Shetland and were generally more massive, and by inference taller, there must be rejected. The evidence from detailed study suggests rather that the broch idea reached Shetland while brochs were still being actively built and developed elsewhere, but that the brochs of Shetland were, with the exception of Mousa, built over a very short space of time, effectively "freezing" the propositions in a fashion which made Shetland brochs more like one another than was the case elsewhere. This might be used to support the hypothesis that when the broch idea arose or arrived in Shetland, the need for brochs was extremely pressing.

The basic pre-supposition is that the greater the variability in the structural details of the brochs of an area, the more time passed between the start of broch-building and the actual need for brochs, and the more innovations might have been tested. On this basis, the structural evidence would seem to favour a main development in Orkney, wherever the broch idea originated.

DISTRIBUTION OF
SUBSIDIARY STRUCTURES

MAP 1

MAP 2



- None
- ◻ External only
- ⊗ Internal only
- ⊠ Internal & external

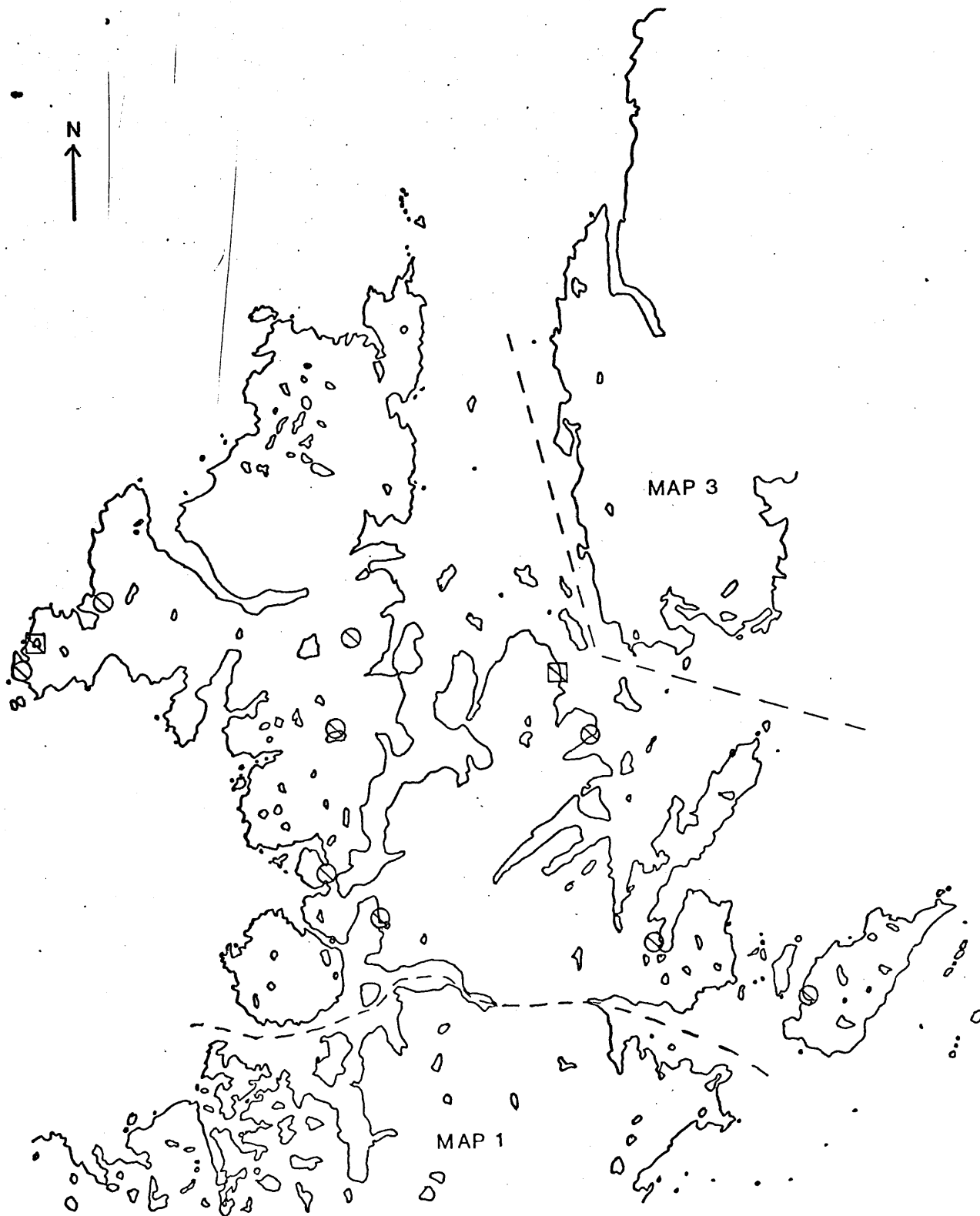
0 1 2 3 5 10 km

1:250 000



DISTRIBUTION OF
SUBSIDIARY STRUCTURES

MAP 2



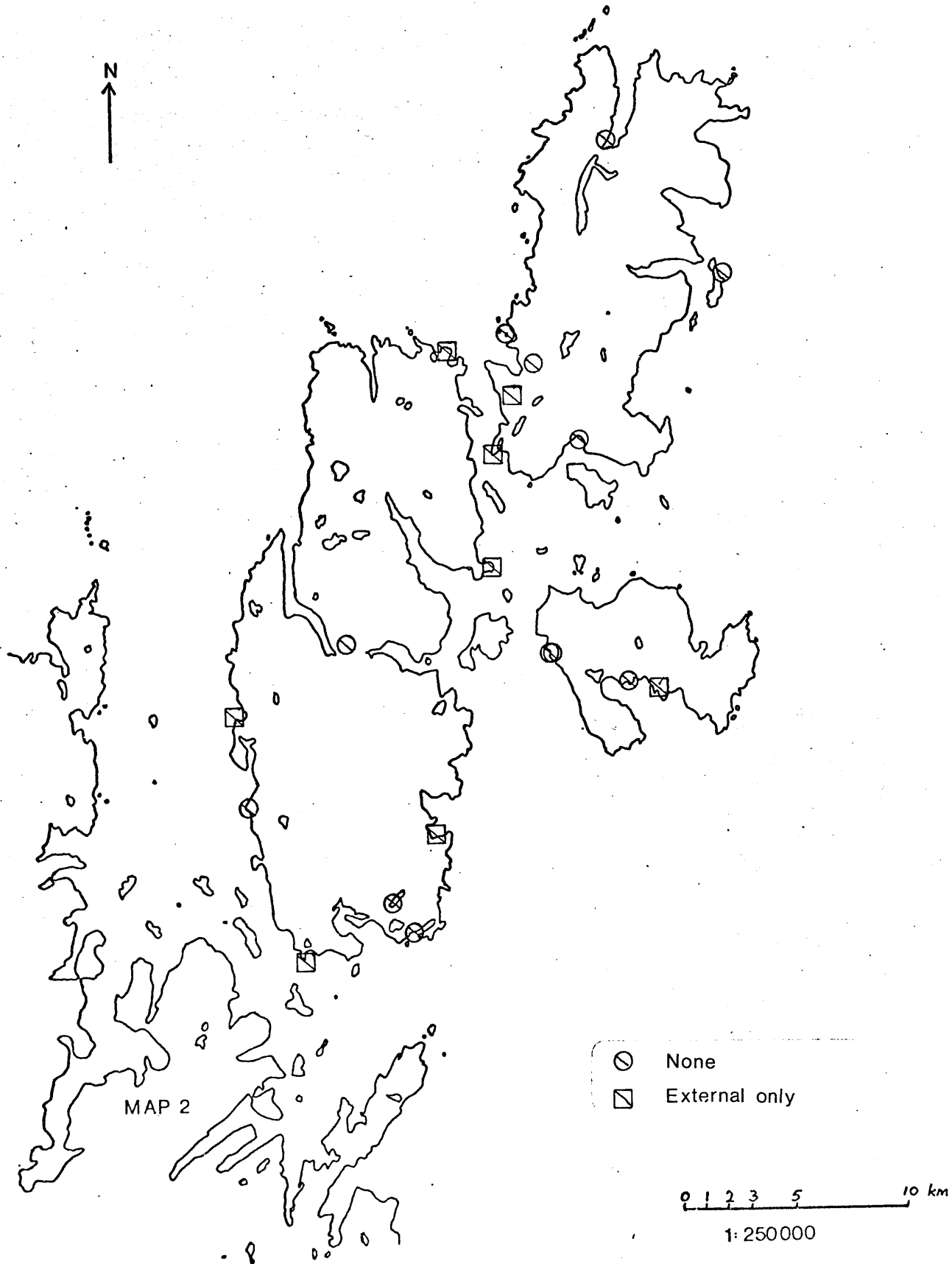
- None
□ External only

0 1 2 3 5 10 km

1:250000

DISTRIBUTION OF
SUBSIDIARY STRUCTURES

MAP 3



"Subsidiary" Structures (Map 1, vii, 4)

The non-defensive outworks of brochs, and structures inside the broch which seem to have been added, are normally termed "outbuildings" or "subsidiary structures". The latter term is used here to avoid the functional implications of the former, and "subsidiary" is used purely in the sense of "less substantial". The structures outside and inside a broch have never been stratigraphically linked. As this would only be possible in two cases, when the entrance-passage has a build-up of occupation layers, or when the broch was so ruined as to allow confident downward stratigraphy from a layer overlying the top of the ruined wall, it seems unlikely that this will be achieved. In consequence, the structures inside and outside can only be related one to another by matching the artefactual assemblages of the two discrete sets of deposits. In consequence, the two types of subsidiary structure, inner and outer, can be dealt with separately.

Internal Structures have been noted from eight sites (Appendix 2, Tables 24-35 inclusive): Burland (1), Clickhimin, Clumlie, Eastshore, Jarlshof, Levenwick, Mousa and Sae Breck, the last named exhibiting only paving. The most significant point is that of the brochs available to study, only Sae Breck had no trace of structures in a cleared interior. Thus the weight of evidence argues that most broch mounds in Shetland conceal the remains of internal fittings.

Internal additions, for additions they must be, on the evidence of straight-jointing and dependence upon the broch inner face for support, take two forms. The first, which is present in all seven examples available, is the inner "casing wall". This consists of a well faced wall, which may/

may or may not be rubble-cored, of varying width, built against the inner face of the broch. This wall may vary from 0.1 metres to 2.5 metres in thickness and is normally of greatest thickness diametrically opposite the broch entrance which is invariably preserved (the second doorway broken through the wall of Levenwick is probably of even later date). At Jarlshof and Clumlie part of this casing wall is free-standing, with a small cavity between the wall and the face of the broch. Where this can be determined, access to the stairfoot is preserved, but the basal cells are variously treated, being blocked (Clumlie) or preserved (Mousa) or one of each (Clickhimin). It has already been suggested that at Clickhimin there may be a blocked right hand guard cell, but elsewhere the guard cells, being generally the first part of brochs to be dug out in unskilled excavations (for example Fugla Ness), do not yield any information concerning their treatment at this stage.

The purpose of these walls is problematical. The volume of the wall at Clickhimin leaves little doubt that its primary purpose is to reduce the internal diameter. Why this should be done is obscure, and the most usual suggestion is that the roofing and gallery arrangements of the brochs were unsuitable for prolonged use, and that once the threat was seen to have disappeared, the majority moved out of the broch, which was converted to a one-family residence by reducing the diameter (see Hamilton, 1968). There is no other well-documented case of a structure being deliberately reduced in size during its career, except where some other reason strongly promoted this, such as a need to subdivide, or to shore up collapsing walls. A possible reason for the reduction at Clickhimin might be incipient collapse on the sector behind the wall. Excavation did not investigate this, but the exterior face of the broch has slumped to the east. It is interesting that the inner face is covered by the inserted/

inserted wall at precisely those portions of the circuit where the outer face is not founded upon the raised apron of rubble.

But Clickhimin is in fact the exception to the rule. At the other six sites the casing wall is less substantial, although at Burland (two casings one inside the other), Clumlie and Levenwick the wall is still thick enough to act as shoring. At Eastshore, Jarlshof and Mousa the wall is little more than a stacking of blocks.

Probably, two separate functions are being displayed by these facings. The really massive casing walls are almost certainly associated with attempts to stabilise a slumping wall. Some measure of support is added to this by the fact that it is the thicker-based brochs which have these heavy inner walls, arguing for instability generated by an excess of core to face weight. On the other hand, the slighter inner walls of the latter sites seem to be purely intended to make roofing at a low level possible, a function fulfilled secondarily by the heavy walls. However, it remains unclear why such roofing was not achieved by removal of blocks from the inner face to form holes for rafters. Possibly this technique was used at some sites but the evidence is now buried.

The second type of internal structural element, the bonded or free-standing radial pier, is present at Jarlshof, Eastshore, Mousa and Levenwick. At Clickhimin, postholes appear in analogous positions. These piers can only have served to support the roof of a structure of wheelhouse-type and may putatively post-date the roundhouse (with scarcement) at Jarlshof.

Thus/

Thus the whole evidence of inner structures in Shetland argues for 1) instability of certain brochs 2) abandonment of the scarcement-supported roof. The only likely reasons for 2) would be a generally observed tendency to distort the broch walls, due to the weight of the roof/galleries, or a reduction in the quality and quantity of timber available.

Comparative evidence from outside Shetland has both parallels and contacts. At Keiss Road (Caithness) it has been suggested that the inner casing is to prevent collapse of an unstable broch inner face (Young, 1962; MacKie, 1971; Blair, 1978; Love, 1978). As remarked above, Clickhimin is the only Shetland broch displaying demonstrable instability but this is largely a function of the lack of excavated sites. Totally absent from Shetland sites, so far as can be observed, are the slab-built partitions so frequent in Orkney and Caithness. This is partially due to unfavourable geology, but even in Dunrossness, where suitable slabs occur these features are absent. The general dating and significance of internal features has been discussed in chapter iv, above. In brief, it may be that some of the slab and light-wall divisions of Orkney and Caithness are in fact original fittings (Love, 1978), but what evidence there is suggests some passage of time (represented by occupation deposits) before the insertion of the wheelhouse-like structures at Clickhimin and Jarlshof. At Mousa a radial pier oversails a floor tank, arguing that the wheelhouse was not in the minds of the broch builders.

The addition of internal dwellings, built of stone, appears to post-date the building of brochs in Shetland by a greater span of time than in Orkney. This tentative conclusion must await excavated evidence.

There/

There is a marked absence of internal stone fittings of the type noted in chapter iv, whose existence seems consistent with the primary design of the broch. The only original internal feature of the four sites in Shetland excavated to sufficient depth is paving, and while only Clickhimin has produced evidence of postholes, only Clickhimin was excavated to below the broch floor-level.

Wells are reported from three sites, of these three being still visible at West Burrafirth and Jarlshof. The latter is certainly of pre-wheelhouse date, and may be original to the broch. Again, the scarcity of fully excavated sites prohibits discussion.

External Structures

Foundations of buildings lying outside, but near to, brochs are much more numerous and widespread. This observation is probably a reflection of the greater likelihood of internal structures being buried while external buildings have escaped burial. Twenty-four Shetland sites have traces of external buildings, and at nineteen of these one or more foundations appropriate to dwellings can be discerned.

At Jarlshof there is a sequence of external buildings commencing shortly after the construction of the broch and running apparently without interruption to the late Medieval period, but at the other site with dated structures, Clickhimin, occupation seems to have ceased by the 7th century A.D. The Jarlshof sequence of house-types has been taken as representative of the whole of Shetland and is confirmed in the earlier part of its span by the Clickhimin evidence (Hamilton 1956 and 1968).

However/

However, examination of the surface remains at other Shetland sites, suggests that the most typical plan of "outbuildings" is neither circular nor sub-rectangular, as at Jarlshof, but oval:

<u>Form</u>	<u>Sites</u>		<u>Total Number</u>		
	<u>Definite</u>	<u>Possible</u>	<u>Definite</u>	<u>Possible</u>	<u>Total</u>
Circular	3	3	11	1+	12+
Oval	6	6	15	13+	28+
Sub-rectangular	4	0	5	0	5
	13	9	31	14+	45+

Circular foundations, represented at Jarlshof by the aisled roundhouse, the wheelhouses and the Pictish houses (all of post-broch date) are relatively scarce, and from surface traces the other examples are not so solidly built as the Jarlshof structures.

Rectangular foundations (or more properly, sub-rectangular) occur at Holm of Copister and Fugla Ness. On the form site the foundation seems clearly post-broch, and after the outer ramparts in date. At Fugla Ness, however, the position of the rectangular block behind the ramparts calls to mind the entrance to Burgi Geos. Too little detail remains to ascertain the true nature of the Fugla Ness block.

Smaller sub-rectangular foundations, often with slightly bowed walls, were noted at West Sandwick and Snabrough. These resemble foundations on several of the promontory forts, such as Flubersgerdie and Garth. The only excavated structures of this form are the Norse outhouses at Jarlshof, but these occurred/

occurred in association with larger buildings totally lacking from all other broch sites except Eastshore. The nearest parallels to the lightly-built bowed rectangular form are the remains on some putative monastic sites, such as Kame of Isbister (Lamb, 1976).

Oval foundations present more problems: a sub-rectangular foundation might well collapse to an oval mound, although most ovals do seem to be true foundation-plans. The only oval structure on an excavated Shetland broch-site is the pre-broch farmhouse at Clickhimin, but in contrast, many oval foundations are demonstrably later than outer ramparts, themselves usually later than the broch. Only at Levenwick is there a clear suggestion of a Clickhimin-type plan, with the outer ramparts swinging out to enclose an area which contains both the broch and an oval stone-built house, (see plan in Appendix 3, site 35).

Again, parallels for oval foundations are recorded from probable monastic sites. Bearing in mind the above strictures concerning collapsed houses not being necessarily representative of ground plans, it may be that the lightly-built sub-rectangle and the oval should be amalgamated into a single class. These structures all survive as very slight surface features, in no way comparable to the series of heavily-walled oval farmsteads typical of Shetland from the Neolithic to the Iron Age (Calder, 1956; Hedges, pers. comm.; Whittle, pers. comm.)

The possibility cannot be ignored that some brochs may have external foundations as early as, or earlier than, the broch: both excavated sites have such structures. Many brochs are built in locations which would have been suitable for non-defensive settlement. Apart from Jarlshof and Clickhimin, foundations of early dwellings were noted at Levenwick and Eastshore, and are a distinct possibility at Burriland and Feal.

Only/

Only Jarlshof, Levenwick and Clickhimin have clear evidence for the circumvallation of much more than the minimum area required by the broch. While the defended promontories do have large areas enclosed by their ramparts, it seems inherently unlikely that such sites would have seen much occupation before defence became a regular consideration, being unsuited in most cases to domestic and agricultural life alone.

Subsidiary Structures: Conclusions

The general conclusion on the field evidence must be that the majority of both internal and external structures are datable to some time after the construction of the brochs, although in some cases they may be only marginally post-broch. The roundhouse at Jarlshof, as correctly observed by Hamilton (1956) may be only just subsequent to the broch and courtyard, and could have been inhabited contemporaneously.

However the traditional view that the brochs were torn down to build these structures is clearly refuted by the occurrence of a wheelhouse inside Mousa. At least in this case the internal structures were compatible with a substantially intact tower. It may, however, be remarked that if, as suggested, in chapter iii, the tower broch is late, and Mousa the only example of this type in Shetland, then it is possible that at the time of wheelhouse construction Mousa may not have begun to deteriorate dangerously, while the other brochs, having stood for rather longer, might have required reduction. Unfortunately this line of reasoning becomes circular.

Elsewhere, the lack of excavation makes firm dating impossible. Accepting the later dating of most external structures, it was noted that in general there is a slight tendency for brochs with extensive outbuildings to lie in the larger areas of arable, but this is by no means clear-cut enough to support the concept of a nucleation of settlement, and/

and for Shetland no broch has more external buildings than might be required by a small broch-using group of fifty or so persons who had moved out of their galleried tenement in the broch. Nothing has yet been excavated in Shetland to equal the extent of the outbuildings at Gurness or Crosskirk.

These observations in Shetland match well with those in Orkney, Caithness and Sutherland (Love, 1978), where the presence of external buildings did not bear any marked relation to the type of site occupied by the broch. In general it may be that brochs with extensive outbuildings simply mark the more socially-coherent broch-groups, and it would be a worthwhile archaeological project to look for scattered settlement in the agricultural areas near brochs with no external structures.

It must always be remembered that data concerning external structures is minimal - at Crosskirk there was no trace of the extensive external settlement before excavation began (Fairhust, pers. comm.) There is even less chance of internal features being clear of rubble without excavation, so the above must remain a provisional assessment.

PLAN OF EXTERNAL DEFENSIVE WORKS

MAP 1

MAP 2

N
↑

0 1 2 3 5 10 km

1:250 000

Ⓕ full circuit

Ⓖ part "

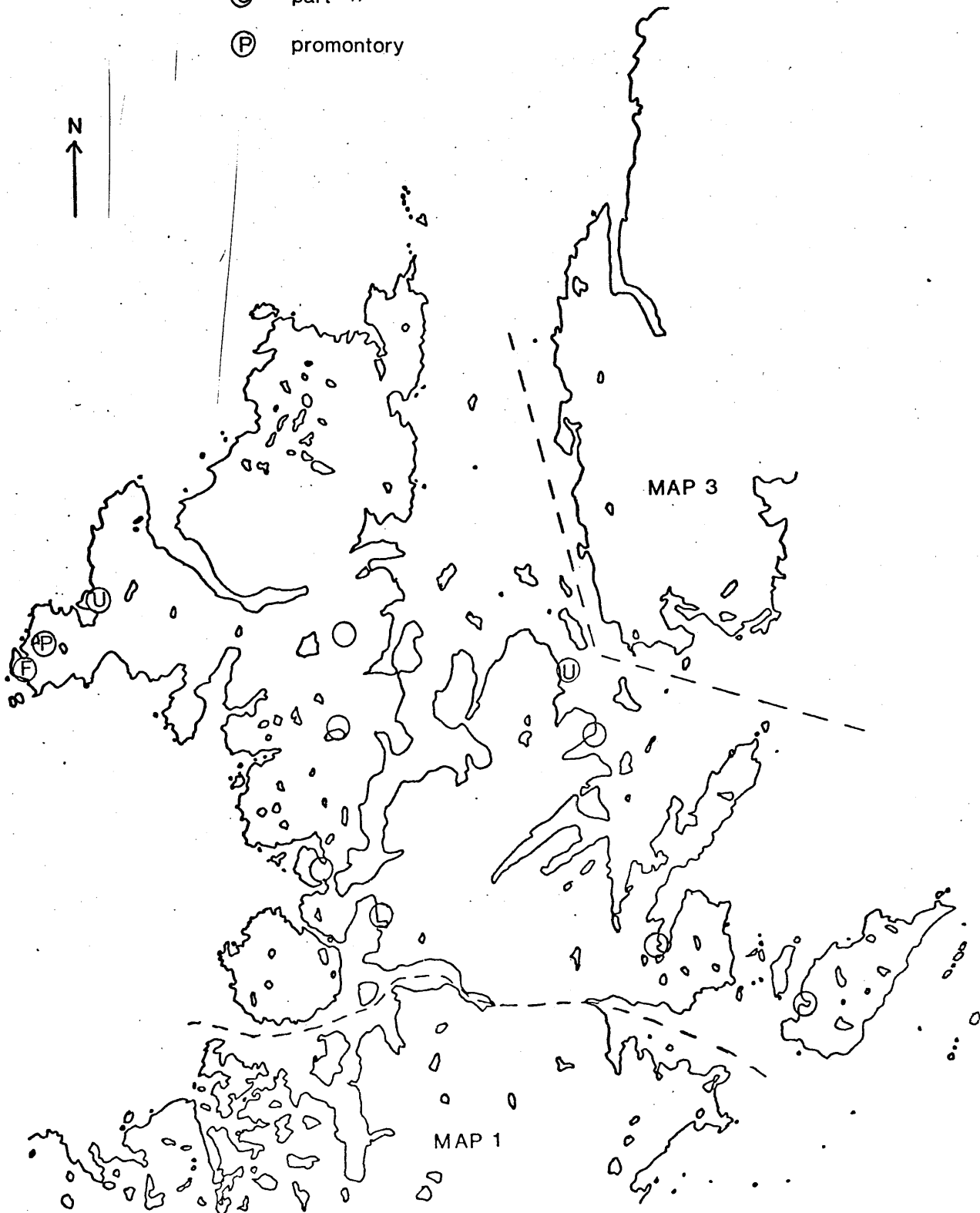
Ⓟ promontory

Ⓢ



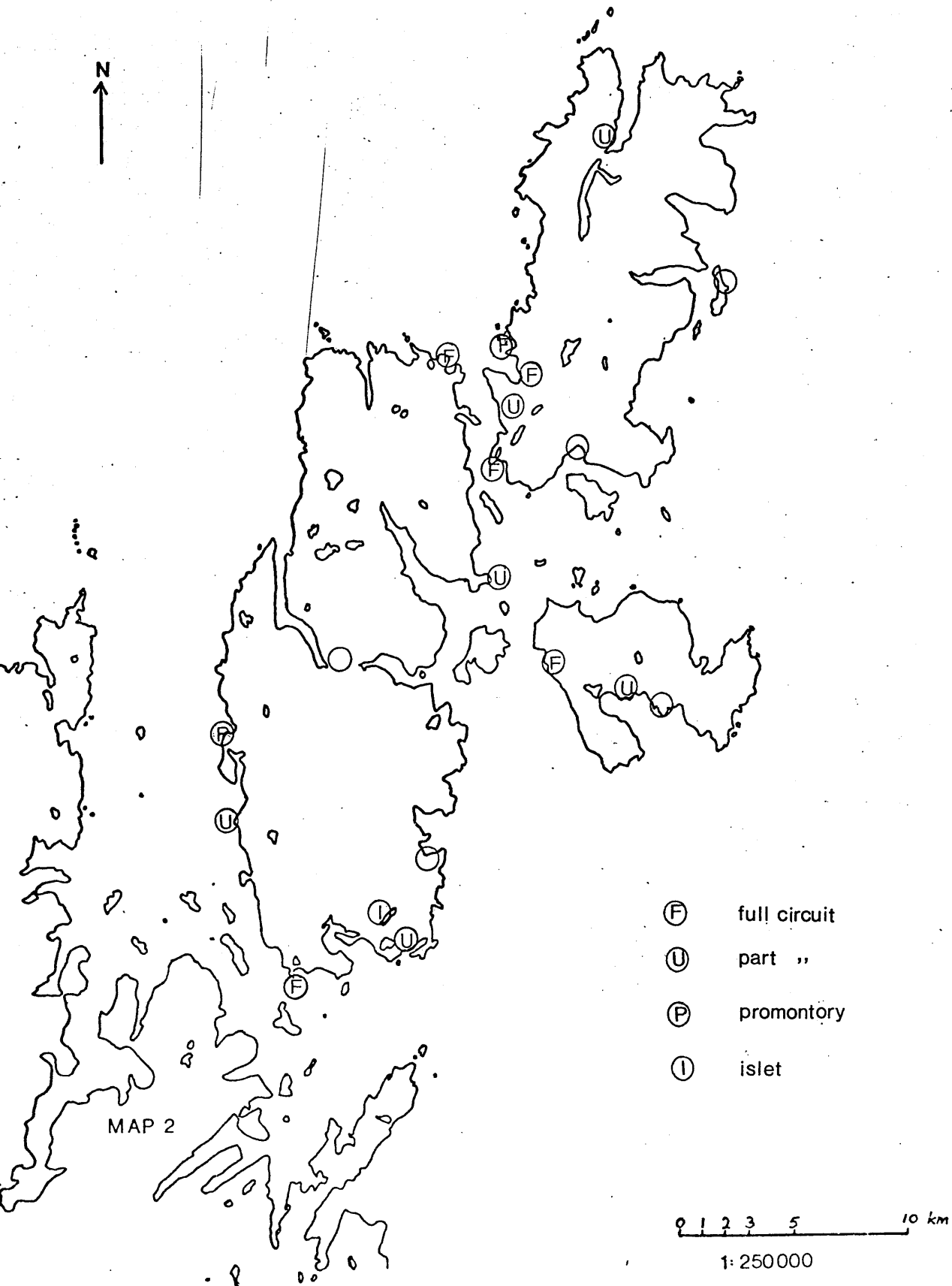
PLAN OF EXTERNAL
DEFENSIVE WORKSMAP 2

- (F) full circuit
(U) part ..
(P) promontory



0 1 2 3 5 10 km

1:250000

PLAN OF EXTERNAL
DEFENSIVE WORKSMAP 3

External Defensive Works - (Map 1, vii, 5)

Over half of Shetland broch sites have external defences, in the form of banks, walls or ditches, in various combinations. These can be subdivided either on the basis of plan or of construction. The former has been preferred here, as the latter is often difficult to ascertain in the field, ruined walls looking very like ramparts of earth, and ditches being frequently filled with debris (Appendix 2, Tables 49, 51).

In terms of plan, the subdivision is:

Apparently full circuit defence	16
Part circuit, part natural, defence	15
Cut-off promontones	8
	<hr/>
	39

These are defined as follows:

Full circuit: roughly concentric on broch, curving around broch and probably originally totally surrounding it.

Part circuit: as full circuit, but a major portion of the defensive circuit being replaced by natural obstacles to access such as cliffs or water.

Promontory: usually curved, but not so markedly as the other two types, and not necessarily concentric with the broch, designed so as to exploit natural defences to the full.

(Appendix 2, Table 50).

Of these types, circuit defences enclose least space in addition to the broch, part-circuits more and promontory fortifications most of all. The relationship is not entirely consistent, and seems to depend much more upon local geomorphology than upon any specific desire to enclose space. So far as is known, Shetland has none of the huge enclosures/

enclosures such as Gurness in Orkney although the now-destroyed outer walls of Housabister seem to have been almost as extensive. It is statistically demonstrable that outer defensive works do not correlate with naturally weak positions, and the implications are discussed under siting, in chapter iv of Section 2, below. The basic fact is that these outer defences do not seem to show any relationship in their distribution to any of the factors of broch structure or environment.

In part this lack of pattern may be due to the poor survival and visibility of outer works; certainly, the figures presented above must be minimal for Scotland. There is, however, little likelihood that defences are totally buried at any Shetland broch sites (as was the case at Cross-kirk, Caithness; Fairhurst, pers. comm.), except perhaps in the areas of sand-blow in Southern Dunrossness. In addition, agricultural activity has not been intensive or extensive enough in Shetland to require the total removal of brochs or outer works. At Burra Ness there is an eighteenth century record of a corn field running right up to the broch, yet the ramparts survived below this to be still plain today. There is nothing in Shetland to compare with the wholesale destruction of Orkney or North Scotland (for example, Kettleburn), or the later, wartime removal of sites in the same areas (Skitten, for instance). In every case of destruction in Shetland, a fair record of the position and general nature of the site survives (see below).

Only/

Only four ramparts have been investigated with any care. Three proved to have been vertically faced stone walls (Jarlshof, Clickhimin, Sae Breck) and the fourth an earthen rampart (Levenwick). (The last-named was dug by Goudie (1872) under the impression he was excavating a burial mound). The first and last are of full circuit type, the other two of part-circuit type. In addition, natural sections were available, in 1979, at three sites (Burland, Eastshore, Wadbister).

From excavation and survey, three structural types of rampart are apparent: stone walls, faced earthen ramparts and unfaced earthen ramparts. Generally, ditches seem simply to have been quarries, but in a few cases the ditches are so deep and/or wide as to seem the primary defensive element, notably at Snabrough, Burriland in Walls and Fugla Ness. In other cases, especially where ramparts are low, ditches seem to be totally absent, but this may be due to subsequent infilling by eroded rampart material, for example at Levenwick and Burra Ness.

The distribution of the three types of rampart are:

All three types	1
Wall + faced rampart	0
Wall + unfaced rampart	3
Faced + unfaced rampart	5
Wall only	8
Faced rampart only	1
Unfaced rampart only	21
	<hr/>
	39

Walls, whether of solid stone or rubble-cored, definitely occur on twelve sites, but are prone to resemble ramparts on degradation, so this is a minimum figure. Of these twelve/

observed that very few ramparts enclosed substantially more space than would be required by a broch: indeed, the ruins of the central tower have often obliterated the inner slope of the inner rampart, as at Dalsetter. Only on promontory sites are large areas enclosed, and this is a function of economy of rampart construction rather than of desire for space.

In percentage terms, Shetland's brochs have outer ramparts as commonly as any other part of Scotland. Only Caithness has a similarly high ratio of defended to undefended sites:

<u>Region</u>	<u>With</u>	<u>Without</u>
Shetland	61%	39%
Caithness	57%	43%
Southern Lowlands	50%	50%
Sutherland	37%	63%
Orkney)	27%	73%
Western Isles)	27%	73%

(The figures derive from MacKie (1973), where the "with" and "without" columns have been inadvertently transposed.)

The present field work has reduced Shetland's "with" figure to 53%, but as a similar redefinition of sites would also tend to reduce percentages in other regions, Shetland's figure remains relatively high.

The meaning of this is obscure. Does the marked difference mean that brochs in Orkney and the West were less prone to attack, or that broch-owners there had more confidence in the broch itself, or their safety from attack? A more basic question is the purpose behind the construction of such defences.

It/

It will be shown (Section 2, chapter iv) that in Shetland the occurrence of outer defences bears no detectable systematic relationship to the presence or absence of natural aids to defence. The latter may influence the form of any rampart, but an absence of them does not redispense the broch towards possession of additional defences. In general, the same holds true for the remainder of Scotland. Rather than producing a rough equality between sites, by compensating for lack of natural defences, outer ramparts are distributed in such a fashion as to increase the range of defensibility, giving a spectrum of broch sites from heavily walled natural strongpoints to undefended plains.

This wide range of defensive capabilities prompts a number of alternative suggestions:

- 1) Some groups felt more threatened than others.
- 2) Some groups could not afford the time and effort, or felt it to be unworthwhile.
- 3) Some brochs were unoccupied by the date at which ramparts were built. (This assumes ramparts post-date broch-building).
- 4) Elaboration of defences has other than purely strategic implications.

Could these defences have functioned in any meaningful way? It has been noted that the configuration and scale of most broch defences would not be effective against any of the more likely projectiles (slingstones, arrows, javelins), and unless very severely destroyed since their disuse, the ramparts of many brochs can hardly have had the effect of exhausting the enemy proposed for the more elaborate, and vastly/

vastly larger, multivallate defences of southern hillforts (Harding (ed) 1976).

There would seem to be at least six possible explanations for the ramparts of Shetland brochs. Some of these are mutually compatible.

- 1) Ramparts were used as fighting grounds to enable an orderly withdrawal into the broch.
- 2) The ramparts held attackers at a sufficient distance to maximise the effect of projectiles launched from the wallhead of the broch.
- 3) The ramparts slowed and broke up any rush to the wall foot thus preventing mass escalade.
- 4) The ramparts pre-date the brochs which stand within them, and functioned alone as defences cum cattle-pounds.
- 5) The space between ramparts, or between rampart and broch sheltered cattle which could not be taken into the broch.
- 6) Elaborate defences were status symbols.

(A consideration not afforded any weight in the above is the superimposition of a fence or breastwork of wood, now totally vanished. This may be a valid consideration elsewhere, but seems less than likely in Shetland.)

Examining these alternatives, it transpires that some support can be afforded to each.

- 1) Despite the continuing debate on the function of more massive bivallation and multivallation of the south of Britain, the ramparts around brochs might well have acted as fighting grounds. The object of such delaying tactics would have been to allow an orderly withdrawal within the broch. In this the defence of a broch is very different from that of a hillfort, as the inner-most rampart of a hillfort is the final line of defence. For this reason, the action fought outside the broch would be a delaying, rather than a holding, action. This would accord well with the slowness and/

1) contd.

and small total diameter of the broch outer ramparts. However, if the role proposed here were the sole function, it could not explain the form of ramparts (generally concentric upon the broch, rather than upon its entrance.)

2) In the absence of evidence for a wallhead walkway, and if the arguments are accepted that the internal stair did not progress by the fastest (spiral) route to the wallhead, the whole case for active defence from the wallhead becomes weaker. Further, the scale of the circumvallations is in general too slight to have held back attackers who were not opposed face-to-face. While the height of the broch itself would have denied attackers shelter behind the ramparts (a major objection to the use of multivallation as a defensive stratagem) the slightness of the ramparts would have achieved this end with equal facility.

3) The fact that ramparts usually ring the broch rather than simply guarding the entrance (with the natural exception of promontory brochs, such as Burland) would seem to argue that the whole wall-foot was being protected. Such precautions can be interpreted most readily as evidencing a rush attack directed at rapid escalade. The aim would have been to surprise the defenders and, in the ensuing panic, to gain access to the wallhead by scaling the outer face of the broch before the defenders could man the walltop. Contrary to popular opinion, it is relatively easy to scale the outer face of a broch, provided there is no interference from above (personal experiment at Clickhimin, Burland and Burra Ness). On this view, the outer defences are to give added time to the defenders to enable them to reach the top of the wall. Perhaps wooden ladders inside the broch would have been used to supplement the tortuous and cramped internal stair.

4) /

4) The suggestion that ramparts may pre-date brochs cannot be conclusively resolved. The Clickhimin case is not acceptable evidence, as the rampart there is not of a common type, being only paralleled at Levenwick and (possibly) Culswick.

At Jarlshof the wall partially enclosing the broch seems to have been contemporary, as also may have been the case at Sae Breck.

However, these examples are all walls, not the more common dump-ramparts or faced ramparts. Nowhere have such ramparts been excavated in such a fashion as to date them relative to the construction of the broch. If they are consistently pre-broch, a whole new class of miniature forts will be added to the inventory of Northern/Scottish defences, while if they are consistently later, they would seem to indicate a failure of brochs to give adequate protection.

If ramparts are approximately contemporary, they can be seen in two lights. Their presence might indicate sites where the defenders left building the broch almost too late, and required rapid protection. (More people can work on a rampart than on a broch, so it could be built faster).

Alternatively, the presence of defences might mark the sites where the defenders discovered in time (by seeing the defeat of un-ramparted brochs) that for some reason the broch tower was not an adequate defence. Only excavation can follow these points further, but the field work evidence suggests that broch outer defences appear to be designed as an integral part of a defensive system including the broch.

5) The use of multiple or single ramparts as enclosures for cattle is a long-established and popular explanation. While it might be possible to establish such use by soil-phosphate analysis, this has not yet been attempted. The technique/

technique would be to drive cattle inside the ramparts. The cattle would then be prevented from straying and could be protected by watchers on the wallhead, equipped with bow-and-arrow, or sling. In addition, the presence of a large number of animals would be an added defence against a type 3) attack (rush to wall-foot, followed by escalade).

However, were the attackers to prevail, such gathering of stock would enable the cattle-raiding function of inter-broch raids to be carried out easily. If raids were primarily directed to obtain stock, a better technique would have been to scatter the animals and then fight a harassing action.

6) The concept of building for prestige cannot be ignored, if it is accepted that broch-period society had much in common with later Celtic society in Ireland and Atlantic Scotland. In this case, ramparts might indicate social status. This would be difficult to demonstrate by any known technique, either of field work or of excavation.

Discussion

It will not be possible to judge among these alternative views until more dating evidence has been acquired by excavation, and more additional material gathered regarding the forms of warfare available to natives of the area at this period. Weapons are singularly lacking from all excavated Northern broch sites.

The pattern of distribution (see Section 2, chapter iv), in indicating a lack of correlation between environmental factors and presence or absence of outer works might support the idea of prestige building, but could equally support a suggestion that all brochs originally had such defences which have since been obliterated in a random fashion. It is a fact that no excavated broch has lacked outer ramparts or walls/

walls, even where these could not be seen before excavation,
as at Crosskirk, Caithness (Fairhurst, pers. comm.)

Effectively, all discussion on the status and role
of outer works must be suspended awaiting further evidence.

Allied Structures

Reference has been made to the existence of a number of defensive sites which, while putatively Iron Age, are not brochs. These comprise two classes:

- 1) promontory forts
- 2) island forts

A sizeable number of both appear among rejected and doubtful broch sites in the Gazetteer accompanying this report. At least twelve promontory forts are identified, and more may be concealed under the guise of promontory sited broch defences. In addition the defences at Clickhimin and Loch of Huxter can be said to be of a similar type. Such defences, in their simplest expression, are earthen ramparts or masonry walls cutting off a neck of land, and may be provided with a blockhouse behind the entrance. The wide variety of rampart types, from multivallation at Stoal to simple walling at Dale, suggests a long period of potential construction, but it must be observed that the range of rampart types is similar to the range associated with brochs.

It has been suggested (above, and Lamb, 1972) that there are two main classes, multivallate forts pre-dating blockhouse and wall forts, the latter group being marginally pre-broch in date (Hamilton, 1956). An analysis of distribution patterns does not clarify the situation, and the scanty artefactual evidence suggests that these sites may all be broadly contemporary with the brochs.

The class of island forts, or duns, is a new addition to Shetland archaeology, due partly to the work of the Ordnance Survey Archaeology Division and partly to original field work in the course of this study. Goudie (1889) excavated a thin-walled circular structure on an islet in Loch of Brindister. This lacked the typical broch entrance and/

and any sign of cells or stair within the wall. The island site made stone robbing unlikely as did the isolated location, so the walls could never have stood very high. A search through the RCAMS Inventory (1946) revealed more broch sites worth investigating and the following seem more likely to be of Brindister type than true brochs:

Burga Water (Sandness)

Burga Water (Nesting)

Bixter Voe (Walls)

Burgastoo (Delting)

In addition, some sites treated here as brochs might be susceptible to transfer to this class, particularly,

Loch of Brow (Dunrossness)

Loch of Kettlester (South Yell)

Mail (Dunrossness)

West Sandwick (South Yell)

There seems little doubt that these duns or forts are of approximately broch-period date. The consequence of pre-broch date would be to further refute Hamilton's thesis of an invasion of broch-building immigrant groups bringing defensive structures to Shetland for the first time. If contemporary, they represent a more basic form of defence than the sophisticated broch, and might have belonged to smaller or less powerful groups. Only excavation can resolve the dating question. Field work indicates parallel traits to broch features, but whether in ancestral, contemporaneous or devolved form is obscure.



Multivallate promontory fort : Stoal, at Aywick in Yell.



Stone-walled promontory fort : Burgi Gaps, in Yell, showing the
"chevaux de frise", approach, and
remains of possible blockhouse.

CHAPTER VIII

The Significance of Shetland

As demonstrated in chapter v, above, Shetland's brochs have normally been held to represent a phase of building rather later than that of most other areas, excepting the Lowlands, and certainly later than the building of the Orcadian examples. The northern theory of origins suggested that the idea of broch building reached Shetland from the Scapa Flow area of Orkney not long after building began in Orkney, while the western theory was substantially similar, except in first bringing the broch idea to Orkney. The role of the blockhouse forts of Shetland as possible broch progenitors was variously accepted and rejected. A final difference was that the theories of MacKie allowed for a late "backwash" of tall, heavily-based brochs from the north to the west. The reasons for these views have already been examined.

It is suggested that the new interpretations of old evidence, and the new evidence, presented in this section require some modification of views concerning Shetland's relationships to wider developments.

The structural analyses of Graham (1947) and MacKie (1973, etc.) had led to the conclusion that Shetland's brochs represented the fully-developed form, after substantial experimentation had taken place to find the ideal design, probably in Orkney, where candidates for the title of experimental structure occur at Midhowe and Gurness. However, both analysts had a very small number of Shetland sites to consider, and in essence their views were centred on Mousa and Clickhimin, both highly individualistic sites. As shown by the structural analysis of all available dimensions, Mousa is wholly exceptional and a creature specific to/

to itself, while even Clickhiminis unusual in lacking guard cells (as does Mousa). Apart from Mousa, the Shetland brochs are shown to be a very similar group of structures.

How are these structural observations to be interpreted? Mousa seems most likely to be a very late expression of what could be achieved, and may in fact have been built much later than the other brochs of Shetland, unless we are to follow the suggestion of Young (1962) and derive all brochs and duns as devolution from the original, splendid concept of the tower broch. Of the other brochs, it may be that Hamilton's suggestion of Clickhimin as an early form may be upheld: certainly the broch gives many indications of a group of builders who made experiments and alterations as they worked. The broch at Levenwick may, similarly, be early. Both lack guard cells and are surrounded by stone walls which enclose a possible earlier dwelling. The overall pattern of broch dimensions would be quite consistent with the arrival of the broch idea at Clickhimin and Levenwick, followed by subsequent copying of the basic design at other sites.

Could the broch form have been invented in Shetland, even at Clickhimin? Hamilton (1968) gives a categorical denial, but the grounds for this are artefactual, and have been rejected (chapter iii, and below). Taking purely structural considerations, if the blockhouse/ are accepted as earlier than the brochs (contra the suggestions of chapter iii) then it could be suggested that the broch was invented in Shetland, spread rapidly to Orkney and the North Mainland, and after experiments to build economical forms, including the invention of ground galleried, rather lower structures, spread to the West. However, the reinterpretation proposed for Clickhimin (chapter iii) would not support this early dating and all of the other blockhouse forts/

forts in Shetland are associated with poorly endowed areas, which might never have supported sufficiently sized groups to require brochs. Judgement must be suspended awaiting conclusive dating for a blockhouse fort.

The best available explanation seems to be that wherever the brochs originated, in Shetland or elsewhere, the Shetland examples, with one exception, were all copied from a single example or plan, but without rigid obedience to a specific set of dimensions. The exception, Mousa, is almost as much abnormal in Scotland as in Shetland, and may be assumed to represent an exercise in the possibilities of broch-building. The status of blockhouse forts remains unresolved, but they seem more likely to be contemporaries rather than ancestors of the brochs.

Turning to the material evidence for the cultural derivation and contacts of the builders of Shetland's brochs, a similar re-assessment is required. In place of a series of immigrations of sizeable groups of (Orcadian?) aggressive settlers, is substituted a much more gentle process. A series of small influxes of peaceable settlers, bringing with them the appropriate styles of pottery, could have mingled with the native population, gradually changing its nature and introducing iron-working, the concept of local organisation, and the rudimentary knowledge of defensive fortification. The former "invasion of broch builders" is rejected on the evidence of the reinterpretation of Clickhimin, and it is suggested that only the broch idea appeared at this time, and that the period was in fact one of isolation after the first contacts with the broch idea, only replaced, after the removal of the need for brochs, by a system of wider contacts characterised by the wheelhouses and their associated material culture/

culture (formerly attributed in error to the builders of the brochs).

The distribution of the wheelhouses remains difficult to explain. The wheelhouse type structure at Vaul, Tiree, is separated from the original broch by two phases of occupation, while at the two Shetland sites excavated, it seems to follow directly upon the end of the first phase. This might well be held to imply that the broch originated in the West and spread to the North, while the wheelhouse reversed this direction of spread. Alternatively both could be invented at a third centre which was further from Tiree than Shetland and from which the broch idea spread much more rapidly than the wheelhouse, presumably due to the pressure of necessity. An intermediate possibility seems even more appropriate: that the brochs were built under more pressure in Shetland, so were not consistently equipped internally as were the Orcadian brochs, so that when the wheelhouse was invented, the Shetland brochs had empty floor-areas, once the timber ranges were removed, into which the wheelhouse could be inserted, while in Orkney and Caithness the broch interiors were still capable of useful life after the broch-defence phase ended, so were not demolished, external structures being built instead. Again, this requires more excavation. In particular, we need to know much more about the relative ages of brochs and their internal fittings.

Overall, the pattern of subsidiary structures leaves only two basic conclusions possible:

- 1) The broch-builders in Orkney and Caithness had more time/leisure to experiment with broch structures and developed variants to meet specific purposes, while the West and Shetland accepted the broch idea, building in haste and only for defence.

- 2) /

2) The brochs of Orkney and Caithness served a fundamentally different purpose, being used as stores for food and only occasionally inhabited by people who preferred to live outside, while in Shetland and the West the people all lived in the brochs.

Indeed, the best explanation for the observed pattern of structural designs would be that in Orkney and North Scotland the broch was a long-established tradition which was borrowed, at different times, by the inhabitants of the Western Isles and of Shetland, when it was needed. Thus the pattern of Orcadian designs would be a medley of developing techniques which has effectively been fossilised at distinct stages in the West and in Shetland (and also in the Central Lowlands).

Progress

The future development of broch studies will, like most archaeology, be geared to answering specific problems. However, a vast quantity of material evidence, apparently irrelevant to the questions under study, will be revealed and must be preserved.

In descending order of priority, the questions raised by the discussions of this section can be resolved by the following action:

- 1) Checking of Clickhimin sequence by carefully-located sections.
- 2) Excavation of a Shetland broch on a promontory, with outer defences and subsidiary structures, paying close attention to the latter.
- 3) A development and extension of the detailed analysis of structure and associated material, as commenced here.
- 4) Simple, patient accumulation of evidence from rescue and research excavation, field work and pure chance, with an open mind supported by a good filing system. Most of the evidence used here was not sought, but simply presented itself. The limitation of the question-oriented approach is that questions limit their own answers (Barker, 1977).

The fourth option, patience, cannot be emphasised strongly enough. If the conclusions of this study have a theme, it is that archaeologists tend to formulate firm theories before they have adequate evidence. The corollary of this is that more evidence is required. As costs of excavation spiral, less will be attempted, and since many of the questions we wish to resolve would require excessive amounts of excavation, we may recall the anonymous dictum of a recent broch excavator:

"Although a rule of one broch per lifetime operates to the detriment of archaeology, it operates toward the continuing sanity of the excavator,"
and turn to an investigation of the alternatives to excavation available to archaeologists in this field.